

Orientation of DIET Faculty of Punjab State on Teaching – Learning Strategies at Primary Level

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PREFACE

Primary Education has been the major concern of all nations, since it is the foundation of the entire superstructure of Education and is directly related with success of democracy. Its universalisation has been taken as an international challenge, a national commitment and an important concern of the states over the last several decades. An important feature of educational development in India during the past several decades has been the sustained effort to evolve a national system of education. The NPE envisaged 'a radical transformation of the education system to relate it more closely to the lives of the people, provide expanded educational opportunities, initiate a sustained intensive effort to raise the quality of education at all stages, emphasise the development of science and cultivate moral and social values'.

Early childhood education in India is subject to two extreme but contrary deficiencies. On the one hand, millions of young children in lower income groups, especially rural and girl children, comprising nearly 40% of first grade entrants never complete primary school. Even among those who do, poorly qualified teachers, very high student-teacher ratios, inadequate teaching materials and out-mode teaching methods result in a low quality of education that often imparts little or no real learning. It is not uncommon for students completing five years of primary schooling in village public schools to lack even rudimentary reading and writing skills.

At the other end of the social and educational spectrum, children attending urban schools, especially private schools, are subjected to extreme competitive pressures from a very early stage to acquire basic language skills and memorize a vast amount of information in order to qualify for admission into the best schools. Parents and teachers exert intense pressure on young children to acquire academic skills at an age when children should be given freedom and encouraged to learn as a natural outcome of their innate curiosity, playfulness and eagerness to experiment. Rising concern over compulsory learning at an early age is prompting many educators to advocate dramatic steps to counter the obsession with premature and forced teaching practices.

As we all know that learners are not passive objects. They are active and inquisitive persons. It is not that only the environment shapes them, rather they too shape the environment to a great extent. The learners do not come to school with a blank mind but with pre-conceived ideas. Their classroom experiences are interpreted in the context of these preconceived notions. Thus, the prior

experiences, beliefs and emotions affect the individual's perception and interpretation of events. This knowledge acquisition is a constructive or generative process and each student's knowledge is personal and unique.

During the pre-primary stage, enormous changes take place in the children's physical growth and mental development. From a state of dependence and helplessness the children gradually attain independence and become curious learners. As their bodies grow and respond to the social and cultural cues, their nervous systems mature and their cognitive experiences are enhanced. They quickly adapt to the world and slowly begin to imagine and discover methods for storing away the memories of the past and present events. When children enter the primary stage their physical development seems to slow down and becomes less eventful. They become slimmer, more muscular and master new skills that enables them to compete effectively against their peers. Depending upon the children's eco-cultural system and developmental niche that emphasises different motor skills, children now become better coordinated. Their thinking is governed by the fundamental rules of logic. Here, the concept of the zone of proximal development (ZPD) acquires significance. The ZPD refers to the distance between a child's actual development level and the higher-level potential. It is the difference between what children can achieve independently and what their potential level of development might be if given help or guidance. The cognitive capacities of the learners are enhanced when instruction is focused on individual potential rather than on the level of their actual development. This concept strengthened the view that social influences contribute significantly to the development of children's cognitive abilities and mentoring or guidance facilitates their development.

The general objective of Primary Education is to give adequate mastery over the basic tools of learning, development of child's personality, prepare children for good citizenship and inculcating in them a sense of the dignity of labour. Hence, to provide a sound system of education, a teacher has to be necessarily empowered with skills or competencies, necessary for developing cognitive, affective and psychomotor domains. Viswakavi Rabindranath Tagore has aptly said, "A lamp can never light another lamp unless it continues to burn its own flames, a teacher can never truly teach unless he is still learning himself". The teacher has to be engaged in self-study and has to continue self-learning in order to keep himself abreast with the latest trends and knowledge. No teacher can afford to spend working lifetime relying only on the capital he has acquired in the years of initial education and training. There is therefore urgent need for re-equipping the teacher from time to time.

Hence, realizing the importance of re-equipping the teachers with suitable teaching-learning strategies at primary level to achieve educational goal, Punjab Administration approached Regional Institute of Education, Ajmer through its state coordination meeting that their 'DIET faculty should be trained in effective teaching-learning strategies at primary level' Keeping this in view, RIE, Ajmer conducted a 5-day training programme.

Specific Objectives and Methodology

A team of four internal resource persons- *Dr. Animesh K Mohapatra*, Reader in Zoology, *Dr. S.K. Pranami*, Reader in English, *Dr. K. B. Rath*, Reader in Education and *Dr. (Mrs.) Shashi Prabha*, Lecturer in Physics planned to carry out the programme in two phases with the following objectives to be fulfilled.

- To acquaint the DIET faculty with the importance of child-centred approach in primary education, action research, learner's characteristics, classroom management and environmental studies at primary level.
- To design different teaching-learning strategies for teaching English, mathematics and environmental studies
- To design activities for easy and meaningful transaction and evaluation

In the first phase of the programme, the internal resource persons developed the training package. In the second phase, a five-day training programme will be conducted for orienting 35 DIET faculty members of Punjab state at Mohali.

In the training programme lectures on important topics like child-centred approach, action research, classroom management, learner's characteristics and information processing were delivered by resource persons followed by discussion on every topic. In addition to these various skills for teaching English, mathematics and environmental studies were discussed. The participants were provided opportunity through group/individual work so as to enable them to develop requisite skills in dealing with classroom teaching strategies in a more effective manner.

Acknowledgement

It is my great privilege to express my deep sense of gratitude and reverence to my principal, Prof A B. Saxena for bestowing on me the honour of being the coordinator for the programme and for his reliable guidance.

I also offer my sincere thanks and gratefulness to Prof. H. C. Jain, Head, DESM for his inspiration and advise which enable me for successful completion of the programme.

A great measure of success achieved with the programme is due to the excellent academic support and involvement of my wonderful colleagues, Dr. K B. Rath, Dr S. K. Pranami, Dr S C. Bhargava and Dr. (Mrs) Shashi Prabha.

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Venue of the Training Programme
Mohali (Punjab)

(10 - 14 November, 2003)

**ORIENTATION OF DIET FACULTY OF PUNJAB
STATE FOR TEACHING LEARNING STRATEGIES AT
PRIMARY LEVEL.**

**VENUE : SHIVALIK PUBLIC SCHOOL, MOHALI,
PUNJAB**

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Regional Institute of Education, (N. C. E. R. T.) Ajmer

Orientation of DIET of Punjab State on Teaching-Learning

Strategies at Primary level

(10th to 14th November, 2003)

Venue. Mohali – Chandigarh

PROGRAMME – SCHEDULE

10.11.2003 (Monday)

9 00 a m.	Registration, Inauguration
10 30 a.m	Tea Break
10 45 a m	Primary Education – Its Objectives & Problems Group Discussion on problems of Primary Education
12.30 p m	Lunch
1.30 p m	Learner Characteristics
3.00 p m.	Tea Break
3 15 p m	Group work on learner characteristics

11.11.2003(Tuesday)

8.00 a.m.	Information Processing
9 30 a.m.	Learner Centred Approach
11.00 a.m.	Tea Break
11.30 a.m	Teaching – Learning strategies for EVS
1 00 p m.	Group Activities

12.11.2003 (Wednesday)

8 00 a.m. ,	Action Research
9.30 a m.	Group Activities
11.00 a.m	Tea Break
11.30 a m.	Teaching of Environmental Studies
1.00 p.m	Activities on Environmental Studies

13.11.2003 (Thursday)

8.00 a m	Skills of Reading English
9.30 a m.	Skill of writing English
11 00 a m	Tea Break
11 30 a m	Low cost – No cost Teaching Aid
1.00 p m	Skills of Speaking and Vocabulary

14.11.2003 (Friday)

8 00 a m	Problems in Teaching English & its remedies
9 30 a m	Teaching of Mathematics
11 00 a m.	Tea Break
11.30 a m.	Feed Back & distribution of TA/DA
1 00 p m.	Valedictory

PRIMARY EDUCATION – ITS ROLE, OBJECTIVES, FUNCTIONS AND PROBLEMS

DR. ANIMESH K. MOHAPATRA

The twentieth century was a period of scientific and technological advancement, accelerating the process of industrialization and urbanization in all countries. Along with industrial and economic development, the century witnessed an upsurge of national movements, which led to the independence and birth of many new nations; tomorrow's world will be one of the accelerated change and ever deeper interaction. Education is already the highest and the biggest industry of many countries. Education now means full social and political involvement. Greater reliance than ever before is placed on education – particularly on primary education.

The constitution of India in 1950 envisaged universal free and compulsory education within ten years but it has remained a dream due to paucity of funds, lack of qualified teachers and other problems that the country had to face from time to time. More recently HRD has launched "Sarva Shiksha abhiyan" to achieve the goal.

Primary schools provide for universal education which is fundamentally a democratic conception. Free, compulsory and universal education is considered a strong pillar of democracy, not only because all citizens will have equal opportunities for all-round development of their personalities, but also because they will become creative and productive members of a democratic society. With

a view to enabling the children to efficiently discharge their responsibilities as citizens, universal primary education is a pre-requisite. Education, especially primary education is mainly shaped by the social milieu in which it is provided. Considering the future of our society, the philosophy and sociology of Primary Education must clearly reflect the rural and urban differences, national and regional integration, industrial and agricultural values of life, population explosion and so on

Education works as a lever in raising financial and social status of the individuals. Therefore, expenditure on education is regarded as useful investment not only by the economist, but also by the educationists. Economic conditions of a country depend largely on educational standards of its people since primary education is the foundation and should be the maximum or basic acquisition for the majority. Since rural population constitutes a major segment of the totality and rural development will largely determine the prosperity and affluence of the country as a whole, primary education shoulders the greatest responsibility in the national enlightenment. The pupil's future may depend heavily upon what he has gained in the primary schools.

Primary education is also the largest single enterprise all over the world. A bit array of teachers, the biggest number of pupils, a large number of supervisors and administrators are involved in this programme. As such, from the point of view of magnitude, from the stand point of psychological preparedness, from the preponderance of sociological influences, in view of the economic necessities, and the philosophical background and in view of scientific enlightenment and humanism, the role of primary education is extremely significant and crucial

The Objectives and Functions of Primary Education

Primary education is shaped according to the prevailing social and philosophical milieu and is regarded as the foundation for the entire superstructure of children's moral, spiritual, intellectual and physical development. Since the middle of the 19th century onwards, it has been recognized as an endeavour of paramount importance in various countries of the world. N.C.E.R.T. (1970) has followed the objectives of Primary Education as formulated by Educational Policies Commission for the schools. These are quite self explanatory as well as meaningful in terms of the qualities and competencies desired in citizens of our democracy. They may briefly be stated as follows :-

- (1) Self-realisation,
- (2) Human Relationship, and
- (3) Civic Responsibility

The Primary schools have their orientation in the society and their objectives lie within the framework of the general purposes of education. In this context, the formulation of the general objectives of the elementary schools made by the Mid-Century Committee on outcomes in Elementary Education as pointed out by N.C.E.R.T. (1970) is quite significant. The report of the Committee has enunciated that Primary Education should be expected to bring about desirable behavioural changes in young children. The behavioural changes may be grouped under the following domains :-

- (a) Knowledge and Understanding,
- (b) Skill and Competence,
- (c) Attitudes and interests, and
- (d) Action pattern

The above four types of objectives may be realized through learning experiences under the following nine broad areas :-

- (a) Physical development, health and body care,
- (b) Individual, social and emotional development,
- (c) Ethical behaviour, standards and values,
- (d) Social relationships,
- (e) The social world,
- (f) The aesthetic development,
- (g) The physical world,
- (h) The communication, and
- (i) Quantitative relationship.

The objectives are expected to bring about the capability in young children to face the future society successfully and to "Live with their fellows, appreciating and respecting their feeling." The primary schools must impart knowledge, understanding, skill, ability and interests to be required by "good citizens" and most of the objectives of primary education have the "educated adult" as their frame of reference. The kothari commission (1966) have succinctly envisaged, "what is expected is that primary education should lay the foundation for a child to grow into a responsible and useful citizen of country."

As given by the N.C.E.R.T.(1970) primary schools have to discharge their responsibilities and play their role only in the context of desirable objectives. Primary school is required to conserve and recreate the cultural values and to prepare the child for various developmental tasks of his present as well as future life. Primary schools have been intended to promote the wholesome, all round growth and development in children in the desirable directions. They are to perform the unique functions of enabling children to accomplish various

development tasks according to their maximum capacities. In achieving the objectives, learning experiences of the two major varieties are provided to the child, one dealing with individual living and another dealing with group living. All these objectives have boiled down to the conclusion that primary education aims at developing all-round personality of the child promoting expression of his innate qualities of head, heart and hand.

Problems of Primary Education :

There are two types of problems of primary education in India - special and general.

Special problems of Primary Education :

- (i) **Drop Out :** For most Indian children the primary stage of education is the terminating point. Though the increase in enrolment at the elementary stage has been satisfactory, the problem of dropouts has been alarming and has been more or less negating the progress achieved. Of every 100 children enrolled in class I only about 40 reach class V and only about 30 reach class VII. Most of those who drop out after class I or II relapse into illiteracy and add to the growing number of illiterates.
- (ii) **Uneven Facilities :** There has been large scale expansion in the field of primary education, yet we have not been able to provide adequate facilities for all children of school-going age. Seventy percent of the non-enrolled children are in nine states which are considered educationally backward. These are Rajasthan, U.P., West Bengal, Orissa, Madhya Pradesh, Jammu and Kashmir, Bihar, Assam and Andhra Pradesh.

- (iii) Coverage of Area : India is a big country. Most of the people (70%) live in rural areas. primary schools are not far from their homes, whereas, in urban areas primary schools are located in each and every colony. According to the fifth All India Educational Survey (1986) about 80% of the rural population was served by primary school/section within the habitation. More than 94% of the population had a primary school/section within one kilometer. In respect of the upper primary stage of education, these figures were about 36 and 85 percent respectively.
- (iv) Buildings and other facilities : About 73% of the primary schools had pucca or partly pucca buildings. About 14 percent were housed in Kachcha buildings. Many sections in the primary schools did not have blackboards. 28 percent of the primary schools were single-teacher schools

General problems of Primary Education

- Providing equal educational opportunities
- Minimizing wastage and stagnation
- Improving school buildings
- Improving the service conditions of school teachers
- Increasing enrolment of girls
- Improving inspection of Primary schools
- Removing administrative bottle necks
- Providing appropriate training of primary school teachers

Measures given in the National Policy on Education

It has been resolved in the NPE, 1986 to provide free and compulsory education to all children up to the age of 14 years. The following measures have been envisaged.

- 1 Child-centred Approach : A child-centred and activity based process of learning should be adopted at the primary stage. First generation learners should be allowed to set their own pace and be given supplementary remedial instruction. .
2. Abolition of Corporal Punishment . Corporal punishment will be firmly excluded from the educational system
3. Suitable school timings: School timings as well as vacations will be adjusted to the convenience of children.
4. Non-detention Policy . Detention at the primary stage will be firmly excluded from the educational system.
5. Operation Blackboard : Provision will be made of essential facilities in primary school, including at least two reasonably large rooms that are usable in all weathers, and the necessary toys, blackboards, maps, charts and other learning material. At least two teachers, one of whom is a female, should work in every school, the number increasing as early as possible to one teacher per class. A phased drive, symbolically called Operation Black Board will be undertaken with immediate effect to improve primary schools all over the country. Construction of school buildings will be the first charge on National Rural Employment Programme (NREP) and Rural Landless Employment Programme (RLEP) Funds. Action has been initiated in this regard.
- 6 Non-formal Education. A large and systematic programme of non-formal education should be launched for school drop-outs, for children from habitations without schools, working children and girls who cannot attend full-day schools.

7. **Use of Modern Technology.** Modern technological aids should be used to improve the learning environment of NFE centers. Talented and dedicated young men and women from the local community should be chosen to serve as instructors and particular attention paid to their training. Steps should be taken to facilitate their entry into the formal system in deserving cases. All necessary measures will have to be taken to ensure that the quality of non-formal education is comparable with formal education.
8. **Effective curriculum :** Effective steps should be taken to provide a framework for the curriculum on the lines of the National core curriculum but based on the needs of the learners and related to the local environment. Learning material of the highest quality must be developed and provided free of charge to all pupils. NFE programmes should provide participatory learning environment and activities such as games and sports, cultural programmes, excursions, etc.

After independence there has been large-scale expansion in the field of primary education but still not sufficient to achieve the goal. Steps should be taken keeping in mind that the child is not to be made merely a cog in the social machinery, but a creative force, a capable citizen, and a critical adult with his unique talents and latent potentialities, Primary Education cannot but be the spring board for developing all the necessary qualities and the fountain head of all the learning experiences for making the child a “balanced and mature adult.”

Information Processing: Theory and Classroom Implication

K.B. Rath

What is Information Processing?

Information processing is a major theoretical and practical framework that describes how humans think. It describes the attainment of concepts and reasoning skills in terms of how we acquire, organize, store and retrieve information. Typically, these cognitive activities involve a series of stages through which information passes and this passage of information through the system involves active, constructive processes rather than passive reception of knowledge.

Although these stages of information processing are not directly observable, researchers and theoreticians have isolated and defined component parts and have developed formal models and theories of human cognition that can be tested experimentally. In essence, these models describe the cognitive skills possessed and being acquired by the learner, and also the manner in which they are used in problem solving activities.

While the description of information processing sounds somewhat mechanistic, the application of theory provides for a thoroughly humanistic view of learning. It describes how an individual actually deals with information being presented, and how new information is integrated with knowledge already held by the individual. Information processing theory allows for the diagnosis of learning difficulties in terms of both cognitive and affective variables.

Theoretical Aspects

A primary focus of this approach is on memory (the storage and retrieval of information), a subject that has been of interest for thousand years. The most widely accepted theory is labeled the "stage theory," based on the work of Atkinson and Shrifin (1968). The focus of this model is on how information is stored in memory; the model proposes that information is processed and stored in 3 stages. In addition to

the stage theory model of information processing, there are three more that are widely accepted

The first is based on the work of Craik and Lockhart (1972) and is labeled the **"levels-of-processing"** theory. The major proposition is that learners utilize different levels of elaboration as they process information. This is done on a continuum from perception, through attention, to labeling, and finally, meaning. The key point is that all stimuli that activate a sensory receptor cell are permanently stored in memory, but that different levels of processing (i.e., elaboration) contribute to an ability to access, or retrieve, that memory. This approach has been extended by Bransford (1979) who suggests that it is not only how the information is processed, but how the information is accessed. When the demands for accessing information more closely match the methods used to elaborate or learn the information, more is remembered.

Two other models have been proposed as alternatives to the Atkinson-Shiffrin model: **parallel-distributed processing** and **connectionistic**. The parallel-distributed processing model states that information is processed simultaneously by several different parts of the memory system, rather than sequentially as hypothesized by Atkinson-Shiffrin as well as Craik and Lockhart.

The **connectionistic** model proposed by Rumelhart and McClelland (1986) extends the parallel-distributed processing model. It is one of the dominant forms of current research in cognitive psychology and is consistent with the most recent brain research (see Scientific American, 2000). This model emphasizes the fact that information is stored in multiple locations throughout the brain in the form of networks of connections. It is consistent with the levels-of-processing approach in that the more connections to a single idea or concept, the more likely it is to be remembered.

Even though there are widely varying views within cognitive psychology, there are a few basic principles that most cognitive psychologists agree with.

General principles of Information Processing

The *first* is the **assumption of a limited capacity** of the mental system. This means that the amount of information that can be processed by the system is

constrained in some very important ways. Bottlenecks, or restrictions in the flow and processing of information, occur at very specific points

A *second* principle is that a **control mechanism is required** to oversee the encoding, transformation, processing, storage, retrieval and utilization of information. That is, not all of the processing capacity of the system is available; an executive function that oversees this process will use up some of this capability. When one is learning a new task or is confronted with a new environment, the executive function requires more processing power than when one is doing a routine task or is in a familiar environment.

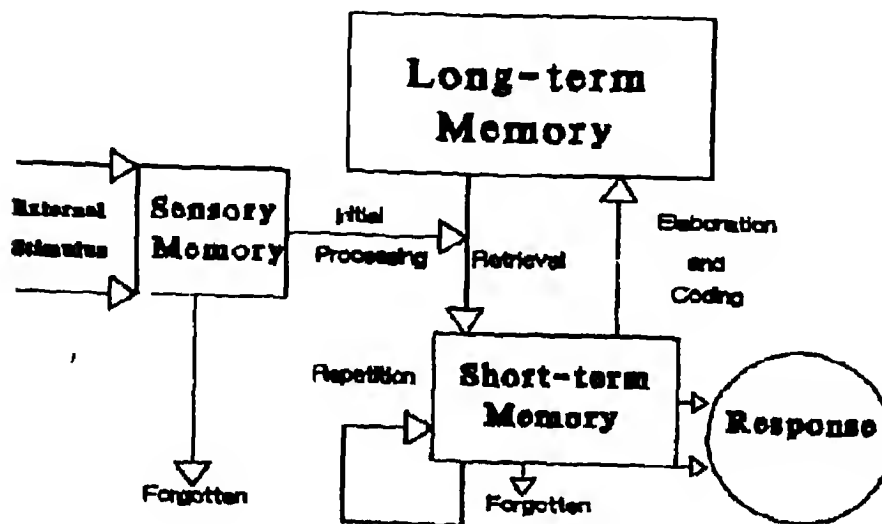
A *third* principle is that there is a **two-way flow of information** as we try to make sense of the world around us. We constantly use information that we gather through the senses (often referred to as bottom-up processing) and information we have stored in memory (often called top-down processing) in a dynamic process as we construct meaning about our environment and our relations to it. This is somewhat analogous to the difference between inductive reasoning (going from specific instances to a general conclusion) and deductive reasoning (going from a general principle to specific examples.) A similar distinction can be made between using information we derive from the senses and that generated by our imaginations.

A *fourth* principle generally accepted by cognitive psychologists is that the human organism has been **genetically prepared to process and organize information in specific ways**. For example, a human infant is more likely to look at a human face than any other stimulus. Given that the field of focus of a human infant is 12 to 18 inches, one can surmise that this is an important aspect of the infant's survival. Other research has discovered additional biological predispositions to process information. For example, language development is similar in all human infants regardless of language spoken by adults or the area in which they live (e.g., rural versus urban, Africa versus Europe). All human infants with normal hearing babble and coo, generate first words, begin the use of telegraphic speech (e.g., ball gone), and over generalize (e.g., using "goed to the store" when they had previously used "went to the store") at approximately the same ages. The issue of language development is an area where cognitive and behavioral psychologists as well as

cognitive psychologists with different viewpoints have fought many battles regarding the processes underlying human behavior. Needless to say the discussion continues.

Stage Model of Information Processing

One of the major issues in cognitive psychology is the study of memory. The dominant view is labeled the "stage theory" and is based on the work of Atkinson and Shiffrin (1968).



This model proposes that information is processed and stored in 3 stages

Sensory memory (STSS). Sensory memory is affiliated with the transduction of energy (change from one energy form to another). The environment makes available a variety of sources of information (light, sound, smell, heat, cold, etc.), but the brain only understands electrical energy. The body has special sensory receptor cells that transduce (change from one form of energy to another) this external energy to something the brain can understand. In the process of transduction, a memory is created. This memory is very short (less than 1/2 second for vision, about 3 seconds for hearing).

It is absolutely critical that the learner attend to the information at this initial stage in order to transfer it to the next one. There are two major concepts for getting information into STM.

First, individuals are more likely to pay attention to a stimulus if it has an **interesting feature**. We are more likely to get an orienting response if this is present.

Second, individuals are more likely to pay attention if the stimulus activates a **known pattern**. To the extent we have students call to mind relevant prior learning before we begin our presentations, we can take advantage of this principle.

Short-term memory (STM). Short-term memory is also called working memory and relates to what we are thinking about at any given moment in time. In Freudian terms, this is conscious memory. It is created by our paying attention to an external stimulus, an internal thought, or both. It will initially last somewhere around 15 to 20 seconds unless it is repeated (called maintenance rehearsal) at which point it may be available for up to 20 minutes. The hippocampus is a brain structure thought to be involved in this shallow processing of information. The frontal lobes of the cerebral cortex is the structure associated with working memory. For example, you are processing the words you read on the screen in your frontal lobes. However, if I ask, "What is your telephone number?" your brain immediately calls that from long-term memory and replaces what was previously there.

Another major limit on information processing in STM is in terms of the number of units that can be processed at any one time. Miller (1956) gave the number as 7 ± 2 , but more recent research suggests the number may be more like 5 ± 2 for most things we are trying to remember. Because of the variability in how much individuals can work with (for some it may be three, for others seven) it is necessary to **point out important information**. If some students can only process three units of information at a time, let us make certain it is the most important three.

There are two major concepts for retaining information in STM: organization and repetition. There are four major types of organization that are most often used in instructional design:

- Component (part/whole)--classification by category or concept

- Sequential -- chronological, cause/effect, building to climax
- Relevance -- central unifying idea or criteria
- Transitional (connective) -- relational words or phrases used to indicate qualitative change over time

A related issue to organization is the concept of chunking or grouping pieces of data into units. For example, the letters "b a t" constitute three units of information while the word "bat" represents one unit even though it is composed of the same number of letters. Chunking is a major technique for getting and keeping information in short-term memory, it is also a type of elaboration that will help get information into long-term memory.

Repetition or rote rehearsal is a technique we all use to try to "learn" something. However, in order to be effective this must be done after forgetting begins. Researchers advise that the learner should not repeat immediately the content (or skill), but wait a few minutes and then repeat. For the most part, simply memorizing something does not lead to learning (i.e., relatively permanent change). We all have anecdotal evidence that we can remember something we memorized (a poem for example), but just think about all the material we tried to learn this way and the little we are able to remember after six months or a year.

Long-term memory (LTM). Long-term memory is also called preconscious and unconscious memory in Freudian terms. Preconscious means that the information is relatively easily recalled (although it may take several minutes or even hours) while unconscious refers to data that is not available during normal consciousness. It is preconscious memory that is the focus of cognitive psychology as it relates to long-term memory. The levels-of-processing theory, however, has provided some research that attests to the fact that we "know" more than we can easily recall. The two processes most likely to move information into long-term memory are elaboration and distributed practice.

There are several examples of elaboration that are commonly used in the teaching/learning process.

- imaging -- creating a mental picture,

- method of loci (locations)--ideas or things to be remembered are connected to objects located in a familiar location.
- pegword method (number, rhyming schemes)--ideas or things to be remembered are connected to specific words (e g , one-bun, two-shoe, three-tree, etc)
- Rhyming (songs, phrases)--information to be remembered is arranged in a rhyme (e g , 30 days hath September, April, June, and November. etc)
- Initial letter--the first letter of each word in a list is used to make a sentence (the sillier, the better)

Organization (types) of knowledge

As information is stored in long-term memory, it is organized using one or more structures declarative, procedural, and/or imagery

Declarative Memory (generally refers to information we can talk about)

- Semantic Memory-- facts and generalized information (concepts, principles, rules, problem-solving strategies, learning strategies)
- Schema / Schemata -- networks of connected ideas or relationships, data structures or procedures for organizing the parts of a specific experience into a meaningful system (like a standard or stereotype)
- Proposition -- interconnected set of concepts and relationships, if/then statements (smallest unit of information that can be judged true or false)
- Script -- "declarative knowledge structure that captures general information about a routine series of events or a recurrent type of social event, such as eating in a restaurant or visiting the doctor" (Stillings et al , 1987)
- Frame -- complex organization including concepts and visualizations that provide a reference within which stimuli and actions are judged (also called "Frame of Reference")
- Scheme -- an organization of concepts, principles, rules, etc. that define a perspective and presents specific action patterns to follow
- Program -- set of rules that define what to do in a particular situation
- Paradigm -- the basic way of perceiving, thinking, valuing, and doing associated with a particular vision of reality (Harman, 1970)

- **Model** -- a set of propositions or equations describing in simplified form some aspects of our experience Every model is based upon a theory or paradigm, but the theory or paradigm may not be stated in concise form. (Umpleby in Principia Cybernetica Web, no date)
- **Episodic Memory**-- personal experience (information in stories and analogies)

Procedural Memory-- how to (driving a car, riding a bike)

Imagery – pictures

Concept formation

One of the most important issues in cognitive psychology is the development or formation of concepts A concept is the set of rules used to define the categories by which we group similar events, ideas or objects There are several principles that lend themselves to concept development

- name and define concept to be learned (advance organizer)
 - a. reference to larger category
 - b. define attributes
- identify relevant and irrelevant attributes (guided discovery)
- give examples and no examples (tie to what is already known -- elaboration)
- use both inductive (example/experience --> definition) and deductive reasoning (definition --> examples)
- Name distinctive attributes (guided discovery)

USING THE INFORMATION PROCESSING APPROACH IN THE CLASSROOM

Principle	Example
1 Gain the students' attention	<ul style="list-style-type: none"> • Use cues to signal when you are ready to begin • Move around the room and use voice inflections
2 Bring to mind relevant prior learning	<ul style="list-style-type: none"> • Review previous day's lesson • Have a discussion about previously covered content
3 Point out important information	<ul style="list-style-type: none"> • Provide handouts • Write on the board or use transparencies
4 Present information in an organized manner	<ul style="list-style-type: none"> • Show a logical sequence to concepts and skills • Go from simple to complex when presenting new material
5 Show students how to categorize (chunk) related information	<ul style="list-style-type: none"> • Present information in categories • Teach inductive reasoning
6 Provide opportunities for students to elaborate on new information.	<ul style="list-style-type: none"> • Connect new information to something already known • Look for similarities and differences among concepts.
7 Show students how to use coding when memorizing lists	<ul style="list-style-type: none"> • Make up silly sentence with first letter of each word in the list • Use mental imagery techniques such as the keyword method.
8 Provide for repetition of learning	<ul style="list-style-type: none"> • State important principles several times in different ways during presentation of information (STM) • Have items on each day's lesson from previous lesson (LTM) • Schedule periodic reviews of previously learned concepts and skills (LTM)
9 Provide opportunities for over learning of fundamental concepts and skills	<ul style="list-style-type: none"> • Use daily drills for arithmetic facts • Play form of trivial pursuit with content related to class

Learner – Centered Approach

The NPE – 86 has recognised that “a human being is a positive asset and a precious national resource which needs to be cherished, nurtured and developed with tenderness and care, coupled with dynamism’ (NPE-1986) The policy has also emphasized that “each individual’s growth presents a different range of problems and requirements, at every stage – from the womb to the tomb”, implying that an individual’s individuality and dignity should be respected, and his needs, interests, aptitudes and abilities taken into account by the educational system (NPE-1986, p 2)

To educate the coming generation that will have the competency to tackle its problems creatively, with confidence and determination, and with a commitment to human values and to social justice, the Policy has advocated “a child-centered and activity-based process of learning” (NPE-1986, p 11). In this module some guidelines have been suggested to facilitate understanding and adoption (or adaptation) of the child-centered approach to teaching-learning situations.

The child-centered approach to education (also known as learner-centered or person-centered) has assigned the teacher a changed role of a facilitator of the learning process and an organizer of the learning situation to “stimulate curiosity and independent thinking, develop problem-solving skills, promote planning and execution of projects and self-learning involving acquisition of knowledge through observation of phenomena, creative thinking and activities” (National Curriculum for Primary and Secondary Education – A Framework 1987, p.6)

Let us examine whether the teaching method followed by you enables the child to develop the above listed characteristics.

Activity No.1

What are the teaching methods and strategies you have been using?
Write them out on a separate sheet

Collect
Collate
Discuss

Now that you have listed the methods that you have been using, let us look at these from the angle of whether these methods and strategies have had their focus on a learner-centered approach or ‘teacher centered approach’.

Even before this let us discuss what we mean by a learner-centred approach.

Activity No. 2

What do you think is meant by a 'learner-centered approach' in the classroom situation?

Collect
Collate
Discuss

As we have gathered from the discussion, the 'learner-centered approach' means that the 'learner' or 'child' and not the 'teacher' is the main focus of the educational programme. The curriculum, according to this approach, should be based upon the needs, interests, aptitudes, and abilities of students at different levels so that it enables the learner to acquire the necessary skills, knowledge, attitudes and values which will help him realise his full potential.

The overall goal of education, according to this approach, should, therefore, be the all-round development of the child, and not only that of acquiring knowledge. When we say 'all-round development' of the child, what does this really mean?

Activity No. 3

Can you list the different aspects of development which the curriculum should cover?

Collect
Collate
Discuss

Yes, as Mahatma Gandhi said, "by education I mean all-round drawing out of the best in child and man-body, mind and spirit". The curriculum should therefore, cover all aspects – knowledge, skills, attitudes, physical health, moral and spiritual values, aesthetics and work experience.

Activity No. 4

Write down in a few sentences whether your approach has been 'learner-centered' or 'teacher-centred' and give your reasons.

Collect
Collate
Discuss

Generally, the approach of most teachers so far has been more 'teacher-centered' than 'learner-centred'. The present approach, as we all know, mainly emphasises attendance in school and ability to memorise and reproduce facts, e.g. the teachers teach straight from the prescribed textbook and the students are expected to answer questions in the same words as in the textbook.

The learner-centred approach, on the other hand, means that there should be a shift in emphasis from the 'teaching process' to the 'learning process'. This means that the focus should be on developing the skills of 'learning to learn' i.e. skills which enable them to learn on their own and be able to face the demands and other the ever-increasing flow of knowledge

Do you think this approach will in any way affect your role as a teacher?

Activity No. 5

Write down in a few sentences what you think will be the ways in which the teacher's role will change

Collect
Collate
Discuss

As we have discussed, this approach means a definite change in the role of the teacher. The traditional or existing role of a teacher is that of a person who imparts content and knowledge to students. The role of teachers in the proposed approach will be that of a 'facilitator or guide' who should be able to provide the right kind of learning experiences and environment to children with which they will, through active interaction, develop the basic skills of observation, skills of observation, collection of information and drawing of inferences and conclusions. These skills will enable them to learn on their own.

Let us take an example. If the students of Class III have to be taught a lesson on 'parts of a plant', it can be done both according to the 'teacher-centred approach' as well as the 'learner-centred approach'

Activity No. 6

Write in two separate columns a description of how this lesson can be taught according to the two approaches

Collect
Collate
Discuss

As you must have thought yourself, this lesson should not be taught merely by describing different parts of a plant in the form of notes. Instead, the teacher should be able to arrange for children to see and handle, some plants themselves, make and note their observations systematically and, with the guidance of the teacher, 'discover' for themselves what the different parts of a plant are.

By 'discovering for themselves' the children's skills of observation and analysis are sharpened and they can apply these skills to many more situations and thus expand their knowledge. On the other hand, the teacher, by giving notes, is able to impart only limited knowledge to the children.

As you will agree, the existing teaching methods of lecturing, providing notes and summaries, dictating model answers and imparting knowledge to be reproduced on demand need to be discouraged.

When we talk of the change in the role of the teacher, let us think about this from another angle. What can the teacher do for the all-round development of the child? Let us take two other aspects of development—social and emotional.

Activity No. 7

Mention briefly how the teacher can contribute to the children's social or emotional development.

Collect
Collate
Discuss

We do realise that the teacher has an important role to play in promoting other than intellectual aspects of development in his students. To foster social development of children, the teacher should plan activities for students which will make them learn to work and play together. An example. a Class III teacher could introduce the lesson on "Different Habitats of Animals" in Environmental Studies by dividing the class into three groups and asking each group to prepare a project on one of the three themes – "Terrestrial Animals", "Aerial Animals" and "Amphibians". This strategy would foster in children the spirit of sharing and cooperation as they work on a joint venture.

Similarly, consider the emotional aspect. The teacher's positive attitude towards the children would encourage them and motivate them to further achievements. Punishment and a negative attitude, on the other hand, can cause severe harm to the child's self-image and affect his school performance too.

Another aspect that we must consider is evaluation of students. Do you think the examination methods should remain the same, or that they too should change, according to this approach?

Activity No. 8

Mention briefly what you think
Are the ways in which the evaluation
Methods should change Give reasons

Collect
Collate
Discuss

As some of you have rightly observed, the main focus will not be on memorization of facts in this approach. It will be rather on 'development of competencies' in regard to all aspects of child development. The evaluation will also have to be done in terms of attainment of competencies rather than of knowledge e.g. one of the competencies listed for Class 1 and 2 for language-teaching is that the child should be able to read meaningfully the different combinations of letters as words. A reading test should not, therefore, be taken by merely making the child read a lesson from the textbook, which may have been read often in the class and which the child may have memorized, but by giving new material by which competence can be clearly evaluated.

Also, evaluation will have to cover all areas of development – knowledge, skills and competencies, social and emotional development as well as work experience. Unlike the present system of report cards indicating evaluation only in terms of marks or percentages for each subject, the periodic evaluation should also include a qualitative assessment of dimensions like sociability, leadership, ability to work with others, self confidence etc. it should also include a column on the child's positive strengths or attributes as well as one on problem areas, if any. These would indicate where the child needs special attention or encouragement, in terms of his overall development. Examination methods will therefore include, besides written tests, oral performance, observation techniques of evaluation and use of cumulative records. Evaluation will be done not merely for the purpose of ranks and grades e.g. to identify children who stand first, second and so on, but will be done with respect to the learner himself i.e. his performance will be compared not with the performance of others, but with his own earlier performances. This will help in noticing improvements in his learning. It is also essential here to bear in mind that every child is unique and has his or her own strengths and weaknesses. Children should, therefore, never be compared with one another because that would only humiliate them and worsen their performance instead of improving it.

Let us also discuss the learner-centred approach in terms of the curriculum. When we talk of the learner-centred approach, does that mean that there should be different curricula for children from different regions

since it has to be based on their needs and characteristics? How does the idea of a 'core elements of curriculum' fit in with this line of thinking?

It is true that children's needs and characteristics must be borne in mind therefore while the 'core elements of curriculum' are common and compulsory for all, the flexibility or differences will be in methods and materials which will be followed in transaction of the curriculum i.e. translating it into actual teaching in the classroom situation. These are likely to differ from region, depending on local needs and culture e.g. the core elements for Class I for language teaching in terms of essential learning outcomes will be the same for, say, Bihar, Rajasthan, and Delhi, but the learning materials i.e. stories, poems, books and charts used by the teachers to help the children achieve the outcomes, may differ from one state to another.

To sum up.

Activity No. 9

What do you think the goal before every teacher should be?
--

Collect
Collate
Discuss

As you yourself know, at present most teachers are concerned only with completing the course. Instead of this, according to the 'learner-centred' approach the goal of every teacher should be to make sure that every child in the class has attained the prescribed 'essential learning outcomes' for that class, for all the subjects. The teacher should not worry about 'completing the course' as he is expected to do at present, but should not worry about 'completing the course' as he is expected to do at present, but should make use of a variety of available materials and methods to make sure that the essential learning outcomes have been attained by every child. He/she should also plan evaluation in the same way.

Let us consider the learning characteristics of the child at the primary, upper primary and secondary stages of schooling. These will have to be incorporated in designing appropriate learning experiences for children at different stages of development.

Primary Level

- a For primary students a major way of learning is through imitating the behaviour of others.

- b Verbal skills are not highly developed in children, therefore learning is enhanced if there is opportunity for physical activity
- c Primary level students understand only those concepts which are represented in their immediate environment.

Thus, in the learner-centred approach you accept students as they are. You should allow them to express their feelings and attitudes freely without condemnation or judgement, plan learning activities with them rather than for them, and create a classroom atmosphere relatively free from emotional strains and tensions. The climate for learner-directed learning is not the result of any one kind of teaching practice. It is here that you can utilize your creativity to generate learning opportunities suited to the needs and aspirations of learners in your charge.

You may wish to know how to develop the educational climate discussed above. The answer is two-fold. First, a permissive and understanding climate, which respects the self and the purposive individuality of each student. It can be developed only insofar as you hold a philosophy which is consistent with these elements. In the second place, you will have to implement this approach to teaching from the beginning in your work, with the class. Since the experience will run almost directly counter to all the previous educational experience of the student, careful thinking will have to be done for the technique to be used.

It is important that the motivation of students should be kept foremost in mind. The class may be started with a description of the problems the students are facing or with a discussion of the general problem areas. The attitudes connected with them have to be clarified. Gradually issues arise out of these problems, and the class is embarked upon its own curriculum transaction.

For students who have, from one to eight or ten years, experienced a class as a passive experience, such an opening of learning activity is at first puzzling, then downright frustrating. Negative feeling, often very strong ones, are aroused. At first they are not expressed because one does not "talk back to" or correct the teacher; but as tension mounts, some bold student bursts out with "I think we were wasting time; I think we ought to have an outline, and follow it, and that you ought to teach us. We came here to learn from you, not to discuss among ourselves." When negative attitudes such as these are understood and accepted, students begin to recognize the climate that exists. Some may not like the procedure, may heartily disapprove of it, but everyone recognizes that this is a very different situation from that existing in ordinary classrooms.

Frequently the teacher, who is considering experimenting along the lines discussed above, believes that he cannot undertake it, that because he must use an assigned test or because his class must pass the same examination as classes taught in a conventional way, he is responsible for seeing that his class covers a prescribed syllabus each week or in each term. These points will illustrate the primary importance of the teacher's attitudes. If, for example, this class must meet the same examination as other sections, the teacher's attitude would change. He would like the course to be the student's course in order to motivate them. There is one limitation which is imposed upon the teacher as well as the students i.e. the examination which every class must take at the end of the course.

In brief, every group has some limitations. It is not the limitations, but the attitudes, the permissiveness, the freedom which exists within those limitations, that is important. Within the limitations that are imposed by circumstances and authority, or by the teacher himself an atmosphere of permissiveness, of acceptance, of reliance upon student's responsibility, can be created.

In behavioural terms, your role as a teacher may be operationalized as follows—

- setting the mood or climate of the group experience by your own basic philosophy of trust in the group, which is communicated in many subtle ways,
- help to elicit and clarify the motivations of the members of the class, accepting all aims,
- rely upon the student's desire to implement these motivations as the force behind learning,
- endeavour to organise and make easily available all resources which the students may wish to use for their own learning,
- regard yourself as a flexible resource to be utilised by the group in the ways which seem most meaningful to them, insofar as you can comfortably operate in these ways,
- accept both the intellectual content and the emotionalized attitudes, endeavouring to give each aspect the approximate degree of emphasis which it has for the individual, and the group,

- as the acceptant classroom climate becomes established, you can change your role and become a participant, member of the group, expressing your views as those of an individual only,
- remain alert to expression indicative of deep feelings and when these are voiced, you may endeavour to understand them from the speaker's point of view,
- likewise, when group interaction becomes charged with emotion, maintain a neutral and understanding role, in order to give acceptance to the varied feelings which exist,
- recognize that the extent, to which you can behave in these differing fashions is limited by the genuineness of your own attitudes

Action Research – Its Need

Dr S. C Bhargava

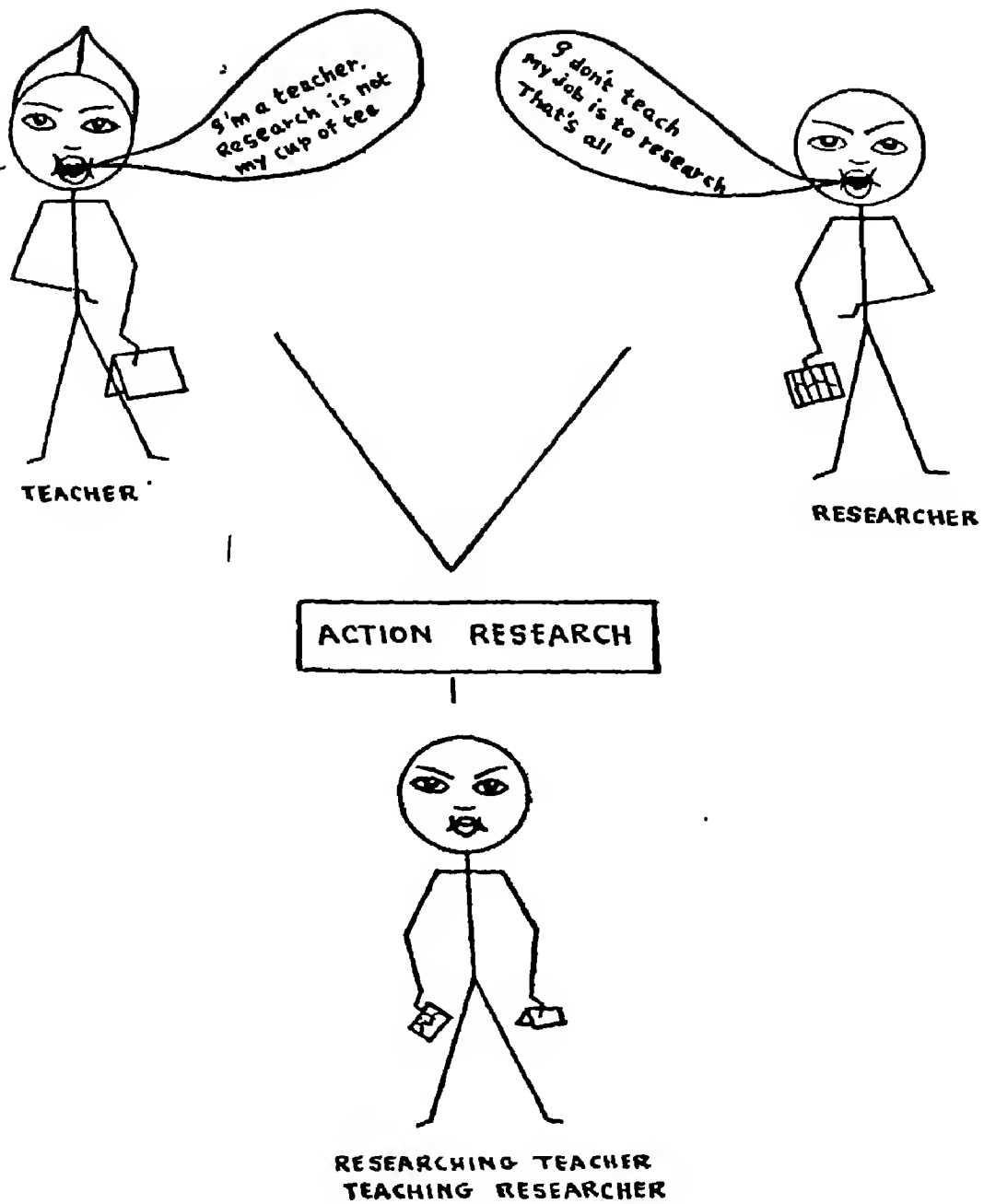
India, as a part of the whole world is passing through rapid changes under the impact of developments in the fields of science and technology. As a result of these changes, or perhaps because of them, there is an urgent need to bring about changes in the field of education also, its objectives and its practices. So far there has been an undue reliance on the voice of authority and decisions arrived at by the powers that be. These autocratic decisions, in the past, were carried out without any zest by the teachers in the field because they were not a party to these decisions. In a regimented social order the individual, to a great extent, is happy because he has not to undergo the travail of independent thinking and independent judgement, but India that has given to herself a republican constitution has to adopt democratic programmes and procedures not only in the political field alone but in every walk of life. Such an objective must, therefore, give entire freedom to teachers also and they have the necessary potential to experiment, to think and to come to their own conclusions and reform or if necessary transform educational procedures and practices according to their own needs and according to their own situations. **The objectives of education cannot be realised by the magic touch of an Alladin's Llamp but they can be tested and made real in the laboratory of the school itself – tested and made real, by the thousands of school teachers in this country. The teachers then will become the technicians and the practitioners also who will realistically consider the conclusions of the academicians but essentially modify these frames of reference according to the situation they are placed in. It will mean then that there will be no uncritical veneration of the conclusions of those who occupy the ivory towers away from the field itself.**

Unfortunately, there is a prevalent notion that research, which originally emerged out of a necessity to solve man's problems, is the exclusive provision of a select caste of professional researchers who use sophisticated research designs and techniques. This pure or what is popularly called **fundamental research**, adopts **"patterns and spirit from the physical sciences"**, has its sole purpose to develop theories and generalisations by adopting rigorous sampling, procedures and statistical techniques with the firm conviction that application of the theories and generalisations thus arrived at, is no headache or business of theirs. This important job or application of conclusions is thought to be the business of some one else – usually the teachers, under the direction of the deans of schools, instructions, the supervisors and the worthy inspectors of education. **The problems of the fundamental research the insistence is on the**

adaptability of the research findings to classroom situations. Action research, it is hoped, will lead to the improvement of school practices that are vital and immediate. Basic or fundamental research touches the school practitioners indirectly in that the results arrived at have no direct bearing or relevance to the problems which needs solution in the school setting. In action research the teachers feels a thrill or what a recent writer said " a joy of discovery" and consequently the motivation is great indeed. There are some research monopolist who doubt the capacity of the teachers to involve themselves in research and also the validity of the action research itself. Besides the purists of research claim that small isolated research projects in action will not lead to broad generalizations Corey was correct when he said that the chief characteristic of research is the use of an objective method of approach in problem – solving with systematic steps in that process and hence research will not be defiled because its bearing is on the practice solution of some problems, howsoever, narrow it may be. There nothing, it may be noted, sacrosanct about research. The advocates an students of fundamental research have failed to make any significance contribution to "grass root" education in spite of their rarify techniques and rigorous methodology in the solution of the pressi problems of education faced by the practitioners in the field. The reas is that they never took into consideration the application aspect of the theories and concepts laboriously arrived at by them A mere glance at the master's and doctoral theses will reveal the dismal fact that they are barren and ineffective though there may be a few noble and notable exceptions. We at the teachers' colleges are aware, perhaps more than any one else, that the masters and doctoral dissertations are read by no one else except the college dean, the supervisor and the poor typist or the printer. In short at best they have no relevance to the field and at worst they are loves labour gone waste. This does not, however, mean by implication that fundamental research is valueless and without significance. It has its place of honour too. In short "while fundamental research will continue to make its essential contribution to professional education, it will be largely the function of doctoral candidates and subsidized research specialists in the universities and government social agencies, professional associations, foundations and larger school systems". The action research will enable the practitioner in the solution of problems in improving school practices in curricular, co-curricular fields, in studying student behaviours, attitudes, values and in developing better teacher – pupil relations and better teaching-learning situations. Not only this It will in the process affect a healthy change in the attitudes of school teachers from passive conformity to active creativity. This process will, again, provide new skills in the practitioners and "develop in them a scientific outlook to problem-solving in education". This will, in short, bring in its wake teacher

growth and professional development – so sorely lacking in the teachers at the present time

I social scientists have pointed out that the “actual learning of better educational techniques is possible only when each teacher experiments with a new idea or a hunch himself and learns from his own mistakes”. This is and here in alone lie the justification of action research. In this process the teachers in the field need all the active cooperation and sympathy of the principals of teachers colleges and their staff headmasters, deans of education and the informed members of the society at large. Let us hope and pray that this cooperation and understanding will be available in large measures and in this way shall education fulfill its role to some extent as an instrument of social change.



Planning an Action Research Project

What is Research?

A layman, when asked to define the word research, analysed it as 'research' and interpreted it as 'searching again'. Naturally, the question arose what is that which is to be searched again? A researcher might reply that it is the 'truth' which is to be searched again. If one examines the work of philosophers and scientists, one will come across three important questions. These questions are (1) Who am I? (2) What is this world around me? And (3) What is the relationship between the world and I? It may also be found out that behavioural scientists are trying to answer the first question. They want to find out truth about the self which means the human organism. Natural scientists, on the other hand, have been making efforts to find out suitable answer for the second question. They are analysing the physical environment and trying to find out truth about it. Social scientists are interested in human relationships. They have shown considerable interest in the third question. Philosophers too have tried to answer these three questions but their method is different from that of scientists. Whereas the scientists have studied these questions through reasoning and by the application of scientific method, the approach of the philosophers is based upon imaginative thinking. Thus, it can be concluded that all philosophers search for truth. Each one of them has searched the truth in his own way. The technique of early philosophers and scientists was not so refined as that of modern researchers. Thus, research may be understood as search for truth which is to be tested and verified again and again with the help of more refined and better tools and techniques.

Fundamental Vs Action Research

Broadly speaking, there are two main aims of educational research: (1) To advance the theory of knowledge and (2) to solve problems teachers and administrators. The first purpose is very well met by the fundamental research. The fundamental research in education means an investigation carried out by an expert researcher in a university or research institute, through the use of highly technical tools and techniques. It aims to improve the theory of education and suggest solutions for most urgent problems in the field. Generally, in this type of research a very wide, important and crucial problem which many teachers or educational administrators confront is tackled. It is not essential that the person who conducts the research himself confronts that problem. **Action research on the other hand, is a programme to solve teachers difficulties and problems. In other words it is a programme to improve school practices.** Dr Corey felt that the fundamental research, no doubt had improved the theory of education but it had not proved much helpful in solving day to day problems of the teachers. Thus, he thought that if the enthusiastic and progressive teachers are acquainted with the principles of scientific method and equipped with simple tools and techniques of research, they would be able to find solutions for their problems themselves. **The action research project may be taken up by a teacher individually or by a group of teachers who work in cooperation to solve their day to day problems.**

Action research, thus may be defined as improving the existing conditions in the schools by the teachers through group participation and by the application of scientific method. Under this system of research, teachers sit together, express their dissatisfactions in school work, describe their problems, think collectively about the possible causes of the problem if required seek the help of an expert researcher, formulate action hypotheses, reason out the consequences of hypotheses, prepare an action plan, follow the action programme, evaluate their results and thus note the progress made by them. In the words of Dr Corey, "Action research in education is research undertaken by practitioners in order that they may improve their practices. The people who actually teach children, supervise teachers, or administer school systems attempt to solve their practical problems by using the method science. They accumulate evidence to define their problems more sharply. They draw on all the experiences available to them for action hypotheses that give promise of enabling them to ameliorate or eliminate difficulties of their day to day work. They test out these promises/procedures on the job and accumulate evidence of their effectiveness. They try to generalize as carefully as possible

in order that their research no contribute to the solution of future problems or to the elimination future difficulties”

Steps in Planning an Action Research Project

The action research agendum should have the following seven steps

Step 1 Selection of the Research Problem

There is a general tendency on the part of both fundamental an action researchers to choose a very wide problem in the first instance This is because many research workers do not possess adequate experience of the field from which they intend to select the research problem It is also true, because many researchers, especially the no ones, lack sensitivity to and a awareness of the research problem To self a suitable problem for fundamental research a great deal of extensive and intensive study of the field is essentially required. An action research worker does not face this difficulty. He need not consult library select the problem. He should rely entirely upon his personal experience. The only thing he has to do is to identify the area with which he f dissatisfied and in which he wants to do some work for improvement.

For example, an English teacher may feel dissatisfied with achievement of pupils in his class, or defective pronunciation, or many spelling mistakes, or general lack of interest in the subject. the teacher might feel interested to find out an appropriate solution these problems. He may take up any of these problems or a similar one at a time for his action research project. Similarly, other subject teachers may locate problems from there own subject areas. There can also be a few problems which concern all the teachers of the school.

The criteria which the teachers should keep in mind while selecting the problem for action research are as follows The problem should be simple and very limited in scope. It should be of great interest to the teachers and should not involve highly technical tools and techniques. It should be of the type on which some action could be taken, while carrying out the action programme it should not disturb the routine school work. It should also not involve heavy expenditure.

*Corey, S. M , Action Research to Improve School Practices, P.141.

Step II Focusing or pin-pointing the Problem

The problem which is located in the first instance is generally very broad and unlimited in scope. It, thus, is essential to specify and focus it. The pin-pointing can be done by defining the problem properly. Try to take up a small problem and delimit it in respect of sample, methods and area of action. If possible the help of an expert or consultant may be taken at the early stages.

To pin-point the problem, first of all list all the questions which come to your mind relating to the problem and which are likely to provide an appropriate solution of the problem. Out of these questions choose a few which you consider to be most crucial ones. Select those questions about which something can be done and also those about which you want to do something.

Suppose a teacher feels dissatisfied with the problem area of indiscipline in the class. To focus the problem he may list the following question. What types of problems of indiscipline does he face in the class? Is it a problem of mischief by boys or any other in disciplinary problem? Why is there indiscipline in the class? How many students are disciplined? What are their specific problems? Do they cut jokes? or Do they not complete the home work? or Are they late comers? etc. Is it possible to find out a solution to control these students? Thus the pin-pointed problem in this case may be, 'to think of a solution to control five mischievous students cutting jokes connect with sex in a co-educational (IX B) class?'

Step III Diagnosing the probable causes of the problem

The success of an action research project depends much upon the correct diagnosis of the probable causes of the identified problem. The ultimate solution of the problem depends upon the correct diagnosis. Hence, diagnosis is the most important indispensable step of a class research.

How should the teacher identify the probable causes/ one method is the teacher should sit alone and list all the probable cause of problem which comes to his mind. This is not a good method as it not be possible for one person to list all the probable cause. The method is that the teacher should call the meeting of the teaching of the school and seek their help in locating the probable causes. The method is good because those who face similar problems might be to suggest causes which the teacher himself could not foresee.

For example, a teacher who has identified the problem improvement of English vocabulary of class VIII might list the following causes: 1) Apathy towards English 2) Lack of good reading method 3) Lack of opportunity to hear and talk English either in the house school 4) Insufficient time devoted to the study of 5) Uncongenial home atmosphere such as, illiteracy of parents, poor over crowding no reading facilities etc 6) lack of audio-visual aids school such as lingua phone records, tap recorder & English films etc

Step IV Formulating Action Hypotheses

In fundamental research hypothesis plays a very important. It guides and motivates the ensuing research activity. It indicates direction of the study and suggests what facts are to be collect focuses the research and avoids pointless empirical wandering C. the Dictionary of Education has defined it as “a tentative adopted to explain certain known conditions and used in guiding research”.*

In Action research, hypothesis too plays an equally important role But the action hypotheses which are used in this type of research are slightly different from the hypotheses which are used in fundamental research. The hypotheses in action research are not mere theoretical tentative generalizations but they are oriented toward some action or follow up work. In action research, thus, a hypotheses must lead to some action programme that is why they are known as action hypotheses

The qualities of a good action hypothesis are that it should refer to the teacher himself, his work or behaviour. It should be sufficiently specific to enable the teacher to take up action immediately. It should be unambiguous and easily manageable. It should be related to the tools and techniques of research which are readily available for use. It should be such that the cooperation f other teachers is easily available It should be related to one of the probable cause of the identified problem. It must state specifically and clearly the action to be followed. And finally it should be such that it does not interfere in the normal school work.

Step V Designing Action programme

The next step is to prepare a programme for action. The action programme should be such that helps the teacher to find out an appropriate solution of the original problem. Carefully designed action programme is likely to produce valuable results. The programme may be in the form of an

*Good, Carter V , Dictionary of Education P 209

experiment or any other related research activity. Cues for this step can be taken from action hypotheses or from the probable causes of the problem. While preparing the action programme the teacher or researcher should make use of a few questions as guidelines. The questions which may be raised at this stage are. what can I do to solve the problem? What can the students do? What can the other staff members do? What time schedule can be followed? What information can be gathered? What sources can be exploited? and what tools and techniques can be employed?

The action programme should include, (1) Plan for information or data to be collected, (2) plan for studying the present conditions

Tools of Research

We may wish to quantify a child's achievement in Arithmetic this, we may test his ability to perform several specific acts research knowledge of arithmetic e g Addition, sub-traction, Division Decimal placing Again, we may compare two text books which unlike in almost in all respects Each book can be quantity expressed in terms of number of pages, number of chapters or num words The simplest method of quantification is that of counting of the following tools and techniques can be helpful in Action Research

- 1 Observation
- 2 Interview
- 3 Questionnaire
- 4 Inventories
- 5 Rating
- 6 Testing Situations
- 7 Sociograms
8. Case Data

1. Observation: This refers to any act of obtaining information simple example will make this clear. A scientific approach o observation will be to obtain data concerning the frequency with the children, a) mispronounce words during oral reading, b) om or entire lines in oral reading, c) vocalize during silent read d) point to each word while reading it silently

However, an observer should also posses certain basic a) He should possess efficient, sense organs, b) be able to rapidly and accurately c) be alert, control the effects of his prejudices d) be in good physical condition and must be able to immediately and accurately the results of his observations

2. Interview The information gathered by an interviewer tends to be qualitative but is subjective in nature This technique can be an asset when used in counseling, personnel placement or climinal psychotherapy The personal interview technique often is more revealing than other techniques of obtaining information. This technique helps a) in gaining a portrait of human personalities b) the sources of hypotheses regarding human motivations and socio-personal interactions c) the collection of personal data for quantitative purposes and d) to secure data from persons who are secondary sources of information.

Again, the interview is not a separate tool in research but supplementary to other methods and techniques. It enriches a study of persons and serves as a check upon other information secured through other sources and other means

3. Questionnaire: This refers to a systematic compilation of questions that are submitted to a sample from which information is to be gathered. The information required usually involves statements relating to a) fact or b) opinion. But this technique has its own defects too. This can be due to the a) improper formulation of questions b) improper sampling c) inadequate returns d) failure to select respondents who are capable and willing to cooperate. If a questionnaire is well planned, this can be of great assistance in the field of research. For example, short answer items often will elicit desired information in readily usable form. One should try to avoid vague terms as "often", much, to any extent or usually, as well as negative term as 'no' or 'never'; especially 'yes-no' questions tend to be confusing. In a questionnaire the data are expressed quantitatively on the basis of the number of persons whose replies are tabulated for further interpretation in an investigation.

4. Inventories: This refers to an instrument designed to reveal an individual's typical behaviour. This also may test one's traits of personality, attitudes and interests. For example, an individual's vocational interests may manifest a certain degree of clustering about generalized patterns. Quantification rests upon the basis of the extent of significant behaviour. For instance, the more frequently the individual's characteristic behaviour related to an aspect of a trait occurs, the greater will be his score. In the interpretation of scores, reference may be made to a standardized scale for the instrument used.

5. Rating: This term refers to an expression of opinion or judgement regarding some situation, object or character. Any individual can be rated on the basis of his or her efficiency in one's day to day task. For example, is one prompt in beginning his daily work? Does he follow plan for his task? Does he use this time judiciously for the assigned task?

Taking another illustration of Rating:-

'You have to rate "Mohan" to be appointed as a class Monitor'

Please circle the letter best describing the results of your observation of him. "A" indicates an extremely favorable opinion of him and E extremely unfavourable opinion.

1	He is considerate at all time	"A"	B	C	D
2	He is neat and clear in person	A	B	C	D
3	He is a clean sports man	A	B	"C"	D
4	He has a positive influence upon his classmates	A	"B"	C	D
5	He is always good at his studies	A	B	C	"D"

Now, a rating device in the above instance serves as a means emphasizing specific qualifications and minimizing any inclination consider only general popularity of "Mohan"

6. The Product Scale: Such scales have been used as devices evaluating handwriting, lettering and English composition. In this scores are attached to each sample indicating relative degrees of marks. For instance, a specimen of pupil's handwriting may be compared each sample

7. Testing Situation: An achievement test constitutes the printed instrument used in measuring the extent to which learning has occur and at the same time a means of facilitating learning. But a standard test will be of great significance as a basis for comparing achievement of a small group with typical achievement of large group elsewhere

Among the most thoroughly employed and widely used are the test of intelligence. They tend to emphasize abstract intelligence, the ability to deal with ideas and symbols. The two patterns of these tests are group tests and 'Individual tests'. Group tests resemble the short answer achievement test information are more economical to use and are satisfactory for many purposes. The individual test are useful particularly with a) young children and b) emotionally disturbed cases and c) cases with special educational disabilities

The objective or new type tests include a variety of forms of test task having in common the characteristic that the correct answer, usually only one, is determined when the test item is written. Common forms of objective test items are a) true-false, b) Multiple-choice, c) completion and d) Matching.

8. Sociogram: This technique was developed by Moreno. This enables one to study the place of a student in a group. One can know his extent of popularity. Further, the sociogram also gives insight by identifying cliques, hierarchic of leadership and other social groupings

The best procedure is to request members of a group to indicate their choices for companions in a particular activity. Teachers have found this

technique an important method of understanding relations among pupils. Thus the school can promote activities which will broaden contacts between children, develop leadership and break down cliques and isolation.

9. **Case Study:** Case study materials also can be utilized in research. The case study of a pupil may include his own story, be capable of his revealing his own inner strivings, his way of life and the motives that drive him to action. For example, a case study can be concerned with the antecedents of relatively complex phenomena as delinquency or reading disability. This technique is frequently used in clinical rather than a research setting; it becomes research only to the extent that it permits the derivation of generalizations relatively of broad applicability.

Action Research Plan

I. Problem Area – Home assignment

II. Pin pointed Problem - How can I help the students of class IX to submit their home work in biology in time

III. Probable Causes

- 1) Lack of help and guidance at home
- 2) Students are over burdened with the home assignments given by other teachers
- 3) Some students are careless and lazy
- 4) Many students are weak in the subject they can not do the home work independently

IV. Action Hypotheses

- 1) If the students are properly guided by the teacher before hand they may be able to do work in time
- 2) If I request the other subject teachers to chalk out weekly programme of home task the students will not be over burdened
- 3) If I give extra time to weak students and help them in overcoming their difficulties they may show improvement

V. Action Programme:

- 1) First of all the regular defaulters will be detected and listed
- 2) Home conditions of the defaulters will be guided
- 3) Students will be given extra help to overcome their weaknesses in the subject
- 4) The habit of doing the home work regularly will be developed among the students This will be done by giving and checking the home work regularly

VI. Time Schedule

Total time to be spent on the experiment = 2 months

1st month

First Week: Identification of students who do not do their homework themselves

Second Week: Study of the home conditions of the students who are habitual defaulters.

Third Week: Discovering the students' difficulties and the hindrances which come in the way of completion of homework

Fourth Week: Meeting with the other teachers and chalking out a programme of assigning homework

2nd Month:

Giving home task according to the plan chalked out in consult action with other teachers Checking the completed home task regularly Removing the difficulties of those students who could not do their homework

VII. Tools & Techniques

Regular record of the home assignment given and checked. Daily record of the number of students who do and who do not do their home work

VIII. Verification of the hypotheses

Assessment of the progress made by the students shall be made at the end of the project

Action Research Plan

I. Problem Area:

Co-ordination between high achievers and low achievers

II. Pin-pointed problem or Focused Problem:

Co-ordination between high achieves and low achiever in class VIII A in English

III. Plan for getting evidence concerning the problem:

- 1 Class Work
- 2 Home Assignment
- 3 Intelligent tests

IV. Diagnosis:

- a) Probable causes
 - 1 Admission of students who are not fit
 - 2 promotion of weak students to higher classes
 3. intelligent children re so eager to learn that they demand a complete attention of the teacher
- b) How to get evidence,
Observation, Intelligence tests e.g. Jalota Test, School Record
- c) What I can do
 - 1 For cause No 1 and 2 I can do nothing
 - 2 Divide the class into two groups and pay more attention to the weaker ones
 3. Give extra work to the intelligent group
 - 4 Create a desire in the weaker group to improve.
 - 5 ask the intelligent students to help the weaker ones
- d) Order of priority
1, 2, 3, 4, 5

V. Action Hypotheses:

If the intelligent children are given the responsibility of guiding the weaker ones, there will be more co-ordination in the class. If remedial classes for weaker children are arranged there will be more co-ordination

VI. Action Plan

- 1 I will entrust each intelligent girl to guide a weak one
- 2 I will give extra marks to the one who has made an honest attempt to improve the weak girl in her charge
- 3 I will provide interesting books for intelligent children from the class library
- 4 I will correct the assignments of weak children in the class with the co-operation of the intelligent children
- 5 I will have remedial classes for weak children

VII. Tools and techniques

- 1 Observation
- 2 Intelligence tests
- 3 Monthly tests and therein achievement

VIII. Verification of Hypotheses or Plan evaluation

Achievement Test and keeping records of their marks

IX. Financial Implication (if any)

Rs 50/- for class library and intelligence tests

Time targets for the Plan

- 1 & 2 One term
- 3 The whole session
- 4 & 5 One term

ENVIRONMENTAL STUDIES – TEACHING LEARNING STRATEGIES

DR. ANIMESH K. MOHAPATRA

What is Environmental Studies?

A child starts reacting to the environment immediately after his/her birth. The sight, sound, smell and touch of people serve to stimulate their senses and soon they get responsive. The interaction leads to experiences, as a result of which learning takes place. As the child grows, the scope of learning increases, and by the time he/ she enters school, he/she already has knowledge of many things. The most important amongst these is the skill of communication. The child has also acquired elementary knowledge of many phenomena-taking place around him/her. However, the skills that he/she has developed and the knowledge that he/she has gained, have to be continuously enhanced, enriched and systematised to enable him/her to develop his/her personality. This is where the teacher and the school have a role to play when children start attending a formal school. The process of interaction with the environment has to be systematised to enable them to make effective use of it. 'Environmental studies as subject fulfils this requirement and is an important part of the curriculum at the primary stage.

By itself, 'Environment' is a broad term. We therefore, need to only know the aspects that influence the lives of the children. The focus of this area of study would be on.

- Developing awareness about the environment, and

- Developing habits, attitudes and skills in children for being healthy and active members of the society.

In school curriculum, Environmental studies has been accepted both as an area of study and as an approach to study. Under the former, the child learns about the environment. As an approach to study, the learning takes place through it. The third component of the study is learning for the environment, i.e. feeling a concern for the environment, its conservation and protection. The approach of its study emphasises the development of the process of learning i.e. 'Learning to learn' which includes the development of learning skills such as observing, enquiring, comparing, analysing and interpreting. While developing these skills, the child acquires useful knowledge, develops valuable understanding, healthy attitudes and values.

Objectives

The content and process of learning related to the curricular area of Environmental Studies aim at developing the following:

- An awareness of the natural and physical environment and the relationship between humans and nature.
- An understanding of the social and cultural environment and the relationship between humans and their social and cultural environment.
- Awareness of the interdependence between individuals in a family and between individual or family and community for survival and growth.
- Skills like observing, enquiring, comparing, classifying, analysing, interpreting, etc.

- Habits of cleanliness and healthy living, along with an awareness of the importance of proper environmental sanitation and hygiene, around the home and in the community
- Scientific attitudes, rational outlook and habits of analytical approach, suspended judgement and orderly procedures,
- An awareness of the scientific method of enquiry and its use in *problem solving in the home and community* and an appreciation of the role of science and technology in life and the world around them.
- An awareness of the need for conserving natural resources
- A respect for national symbols like the national flag and national anthem, democratic processes and institutions of the country, and for the culture and life styles of persons of other religions, regions and countries, and
- An awareness of the interdependence between different regions in the country and between different countries of the world. While the former is important for the growth and development of the nation as a whole, the latter is for the development of each nation.

Learning outcomes

Outcomes are the end goals of learning – they are things that learners can do. They are not lists of subject matter or content that has to be memorised. Instead, a competent learner is one who can use skills and knowledge to solve problems. A competent learner develops values and attitudes that guide their thinking and help them lead a successful life. Learners who master the art of solving problems become increasingly independent and confident.

Another simple example to prove this would be the case of a child learning to play the piano. While learning to play it, the child also learns the skills of reading music.

The objectives of teaching Environmental Studies given above are global and meant for the entire primary stage. To make them more specific, the learning outcomes will have to be visualised in terms of student behaviour. Ideally this should be done for each unit of the Course book. Learning outcomes have been defined in terms of processes rather than focusing on end products. They aim at helping children construct knowledge themselves and learn from personal experiences. In simple terms, we ensure that children develop the skills of :

- Learning to Know
- Learning to Do
- Learning to Live Together
- Learning to Be

Competencies to be developed by primary school learners in Environmental Studies:

We, as teachers, should ensure that the competencies are developed in a logical way, as given below:

Learning to Know

- Develop a basic understanding of structure and functions of various parts of the human body.
- Develop an understanding of social, cultural, natural and man made environment.
- Develop an understanding about personal well-being.

- Demonstrate an understanding of the need for conservation of natural resources and protection of the environment.
- Develop an understanding of distance in space and time

Learning to Do

- Develop competencies and skills for lifelong learning
- Interpret and report observations in a variety of ways
- Practise healthy habits such as cleanliness, discipline, punctuality etc
- Develop a healthy attitude towards dignity of labour.
- Develop skills of reading a map
- Develop skills of using a globe.
- Develop skills of using units of measurement
- Plan and carry out simple experiments.

Learning to Live Together

- Develop social skills and values such as caring for others, specially elders, children and handicapped people
- Learn to live in harmony with the environment and people of different faiths.
- Recognise and appreciate the contributions made by different people.
- Respect rules made by and for the community and follow them.

Learning to be

- Understand and play their role in the school, home, society, etc.
- Express themselves freely and clearly.
- Acquire habits of self-learning

- Develop the ability of ask simple questions
- Practise desirable values like honesty, patriotism, brotherhood, etc
- Appreciate beauty in the environment.
- Appreciate cultures and traditions and take pride in being Indian.
- Show and promote respect for others
- Develop the ability to process information
- Develop a scientific temperament.

NCF Guidelines

In class I and II, children are introduced to the environment in its totality. No clear-cut distinction between natural and social environment has to be made. Its content will be drawn from the immediate environment of the child. There will not be any separate area of study for it. Its content has to be integrated with language, mathematics and other activities such as games, health activities and drawing. The skills of observation, description and self-expression could be promoted.

In classes III to V, the natural and social elements of environment may be introduced under separate area of study called environmental studies. Starting from surroundings of the children – home, school and neighborhood, they may be familiarised with their state and country in a gradual manner. Stories and narratives concerning their everyday life – food, clothes, houses, fairs and festivals, and the changes taking place in their surroundings will make the curriculum relevant and enjoyable for the young learners. At this stage, an attempt may be made to develop a sense of pride in and respect for the traditional dress patterns, costumes, folk music, folk

dance, fairs and festivals celebrated in the local community and area. This may be done with a view to developing an understanding of various factors that contribute to social cohesion

Teaching - Learning Strategies

Environmental Studies is perceived as *an integrated whole taking into its fold the natural, the man-made, the social and the cultural environment.*

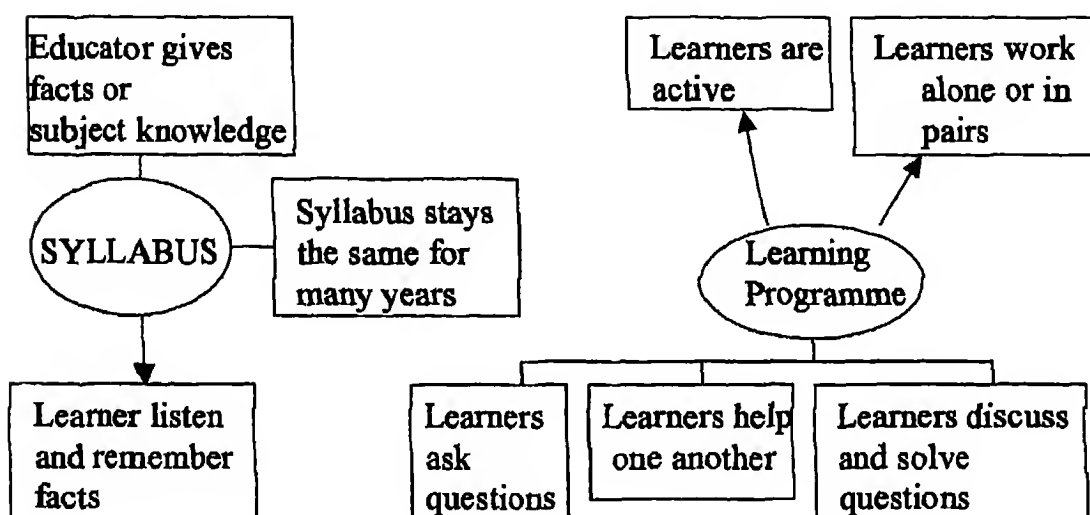
In a nutshell, Environmental Studies is :

- Learning about the environment
- Learning through the environment – implying a systematic exploration through a variety of activities
- Learning for the environment by developing a genuine concern and sensitivity towards its protection and preservation.

The best approach that could be adopted for teaching Environmental Studies would take the following factors into consideration

- 1 Constant interaction with the learner
- 2 Asking leading questions
- 3 Exploiting the maps, pictures, etc., in the book.
- 4 Reading the lesson silently – *using it for further clarification*
- 5 Highlighting values and attitudes
- 6 Relating the text to the environment
- 7 Using Activities to
 - Deepen comprehension
 - Generate discussion
 - Develop critical thinking through problem – solving, and decision-making.

Remember, Environmental Studies presumes a shift in Teaching – Learning strategies – from a teacher – centred, subject-based and classroom oriented approach to child – centred, learning based and community oriented approach. It is, therefore, imperative for us to understand the difference between a syllabus and a learning programme devised by teachers to make teaching more effective and practical. The following Mind Map would give you an insight into the difference between a syllabus and a learning programme.



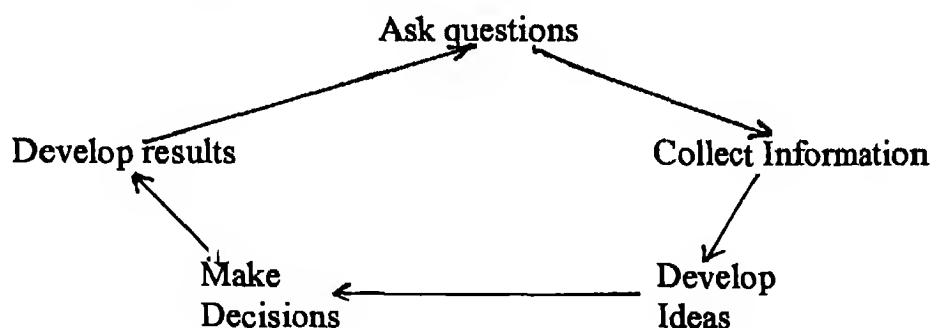
As suggested by the NCERT, we need to ensure that the learners do activities –and a lot of them. These would help them comprehend and understand the subject better. Some activities that could be done are listed below :

- Use of pictures, charts, maps and tables given in the Course Book and Activity Book.
- Use newspaper clippings.

- Help the children make maps, charts, colleges, etc.
- Brainstorming should be encouraged.
- Help children collect flowers, leaves, pictures etc.
- Organise visits to historical places.
- Organise excursions, visits to the zoo, planetarium, etc.

Remember, 'We learn best when we care the most.' The intellectual world must be integrated with the world of emotions.

Since the new syllabus recommends that we follow the learner-centred approach, it is important that children be given the freedom to learn by themselves. For the learners this means that they have to take an increasing measure of responsibility for their learning, which is fully interactive. For the teacher, this means that as the learners begin to acquire new skills on their own, she essentially becomes a facilitator. The diagram shows how this works for the learner.



Learner-centred approach

An important tip to remember here is that we must never assume that a concept has been mastered by the children simply because it has been introduced to them. It is imperative to constantly reinforce each aspect of new concepts by creating new learning opportunities. Many such opportunities are offered in the Activity Book for reinforcement and

revision. When related skills are being introduced, the activities are designed to allow for earlier material to be revisited. Whilst being careful to present material at a stage and in a manner accessible to majority of students, the authors believe that within their individual limitations, most children prefer to be tested and stretched. *Local knowledge and varying experience of teachers* will quite properly suggest different regimes for approaching the teaching of Environmental Studies, both from child to child and school to school.

Classroom Organisation

The management and organisation of the classrooms is an important aspect in any child centred approach to learning. In this approach the teacher should play the role of a facilitator of learning rather than dispenser of knowledge. The management and organisation of the classroom has to be different from a traditional one. *Involving children in an activity* requires more elbow-space for them; therefore, the seating arrangement has to be accordingly modified. The classroom should have a flexible seating arrangement. Active pupil participation in individual and group activities should be encouraged. Using resources from the environment to supplement the classroom resources is a must for any successful teacher. Some suggestions regarding this are given below:

a) Group Activity

The teacher may often resort to organising activities in groups. In a class of 40-50 children, this has special advantages. *A high pupil-teacher ratio and resource constraints* are the realities of our schools. To overcome these, the teacher may set up groups of 5-6 children and supervise their work. Each group can be assigned a particular activity related to the topic under study. The result of each group can then be shared with the rest of the

class, through discussions. The teacher may resort to this strategy as per the needs of his/her situation.

Each group member should be assigned a specific role, in conducting and reporting the group work. One member may act as a group leader. The group leader is made responsible for sharing the experience of the group with the rest of the class. The roles of all the members of the group should be rotated, so that each child gets the opportunity to play different roles. Thus, they will learn to take on different responsibilities. Involving children in-group activity not only facilitates better learning from peer group interaction but also develops in the children a sense of responsibility and a cooperative spirit.

b) Organising Field Trips

The teacher as per the need of the teaching-learning situation may have to take children outside the classroom. The outside activity may be in and around the school campus or at a place distant from the school. For any field trip, the teacher should ensure the following:

- The teacher must select the place and make a prior visit to the place in order to plan the trip. He must analyse the situation and note down its potentialities for subsequent activity.
- The teacher must prepare the children for the trip. He/she advise them on what to observe and how. However, he/she should not be very rigid. He/she should allow the children to make observations which he/she may not have planned for and use these for extension of activities and ideas.
- The teacher must plan the follow up activities to find out if the objectives of the field trip have been achieved.

It is possible that one visit may lead to organising many activities. These activities may be related to subject areas apart from Environmental Studies such as language, 'art education, mathematics, etc. The teacher should explore such possibilities and make use of them.

Evaluation

Since the emphasis of Environmental Studies is on encouraging children to observe and explore, the assessment of the learning outcomes will have to be based on the observation of the children and on oral questioning. *Children should be encouraged to orally describe their observations and experiences.* Evaluation should be diagnostic in nature and deficiencies in attainment should be rectified through remedial instructional learning activities.

There are four main reasons for assessing learners :

- 1 To make decisions about the next steps in the learning programme and to decide whether your intended outcome was achieved.
- 2 To recognise learning difficulties and help learners overcome these.
- 3 To give a clear picture of each learners' capabilities that you can pass on to parents and other interested parties.
- 4 To be able to measure particular skills and abilities.

Assessment is an essential part of the Teaching – Learning Process. When you monitor and assess how your learners are doing, you can assess whether they are ready for new learning. You can also see whether your teaching has been effective. The results can be used in follow-up lessons to adapt your methodology for better results. Ask yourself the questions below; wherever necessary, try to improve on your performance.

- 1 Were you prepared, organised, confident?
- 2 Did the lesson proceed smoothly?
- 3 What would you change for the next time?
- 4 Did the learners understand your instructions?
- 5 Were you enthusiastic?
- 6 Were the learners challenged?
- 7 Was it beyond their capabilities?
- 8 How good were your observational skills?
- 9 Did you achieve your objectives?
- 10 Was the students' report back clear, logical, etc ?

You would finally have to devise your own procedure and frame the questions depending on the situations.

TEACHING – LEARNING STRATEGIES FOR EFFECTIVE TEACHING OF ENVIRONMENTAL STUDIES

INTRODUCTION

Teaching is not just an act of transmitting information to students or telling students what or how to learn. Such an approach seldom results in learning. The act of teaching is always a dynamic interaction of teachers and learners. Effective teaching attracts attention of students, directs flow of information, provides manipulability situation and enthruses students to involve actively in the learning process by connecting various information and developing the essential competencies. It should provide conditions to students to act on the materials to be learned.

The competency based approach based on MLL framework, the recent initiative in curricula transaction, essentially demands learner centered interactive mode of classroom transactions. Obviously, teachers need to update their competencies to provide manipulability tasks or situations to ensure learners involvement in learning.

Evidence from Psychology

Evidences from psychology demonstrate that active involvement of the learner is an essential condition for learning. In all the experimental situations, the organism whether it is cat or rat or chimpanzee has to perform the desired activities to reach the goal or to find the solutions. The activities and the directions provided by the psychologists are also equally important in ensuring the involvement of the organism in finding the solution. What does this mean? What or how a teacher does in a classroom has implications for the involvement of learners in learning.

The nature and level of involvement in learning depends on the type and level of activity provided by the teacher. Activities will differ depending on the nature and the level of the competencies that are to be attained

Activities need to be essentially child centered and the basic conditions are

- manipulability
- ensure involvement of all learners
- meet learner needs
- provide situations to attain competencies
- promote individual and group learning
- promote thinking process

In this module you will be reading a set of strategies for building and expanding vocabulary, understanding concepts and their relationship, making inferences, reading, writing and developing thinking process in the area of EVS – Social Studies at primary level.

The approach adopted is to provide you a set of interactive strategies based on child centered approach which can be used by a teacher without much equipments or material support. Certainly, a teacher has to use his or her insightful thinking to translate the ideas given in a lesson into action so that learners will be able to actively involve and learn. Each strategy has been explained in terms of what, why and how including illustrations based on social science content at primary level specifying the competency.

Points to Remember

The teacher who seeks to develop professionally is the one who :-

- is not satisfied with old ways of teaching
- constantly seeks new ideas and experiments such ideas
- identifies classroom problems and seeks answers
- shares ideas with others
- is keen to learn from others
- avoids seeking ready made solutions from authorities
- tries to provide learning conditions to each child

For teacher training purpose, the training modalities are explained at the end of each strategy. General guidelines which are common for all the strategies are listed below. Only, strategy specific procedures are detailed under each strategy.

OBJECTIVE

Upon going through this set of modules you will be able to understand the suggested strategies and develop the competencies to transact Environmental studies content using the same strategies.

Module: - 1

ANALYTICAL READING

What ?

It is a strategy that involves reading a lesson systematically and analytically, and comprehending the main ideas and details. Analytical reading is performed through a set of sequential steps - survey, question, read, recite and review. The teacher leads students through a set of study activities in each step and provides conditions for learner involvement. It helps learners to connect ideas and identify major ideas as well as see their differences. Analytical reading promotes thinking process among learners. It is an effective technique for teachers for promoting reading among learners.

Why ?

Reading is a basic activity in primary classroom and teacher guides this activity. Usually teacher asks students to read a lesson from the text book loudly and the students follow it. This form of activity only promotes identification and pronunciation of words as well as word meanings. Infact, reading does not confine to this alone. The child should understand the various ideas in the text and integrate them meaningfully. They should also learn how to use the words in new situations as well as promote their thinking process. Certainly, this demands active involvement of learners in learning. This particular strategy stimulates these processes and makes students active in classroom learning.

How ?

This strategy is carried out in classroom situations through a set of sequential steps. Using an illustration based on a lesson "**cycle of season**" the various steps are explained. Let us examine them.

*** Competency : Identifies seasons and their effect on the lives of people**

Step - 1 : SURVEY

The teacher leads students first to read the introductory and concluding sections of a lesson that is to be learned through headings and subheadings to signal the main idea. This is done to identify the outline of the lesson. Teacher writes the outline on the blackboard as shown below.

Summer	Rainy Season	Winter
Time	Time	Time
Weather	Weather	Weather
Region of the country	Region of the country	Region of the country
Effect	Effect	Effect

The outline is identified based on the major idea(s) dealt in the text with the help of introductory and concluding sections and headings

Step - 2 : QUESTIONS

The teacher provides a set of questions (see the illustration 1). With young children the questions should be preferably simple which can be answered in a few words. Each question given here can be supplemented by additional questions of 'Yes' or 'No' type to lead the students. The questions set the purpose of reading

Illustration - 1

Questions	Summer	Rainy Season	Winter
1. What kind of weather does it have ?			
2. When does the season begin ?			
3. Which part of the country it is high ?			
4. What type of dress people wear in each season ?			
5. Why do people change dress according to the season ?			

Questions specific to local situations can be asked For instance, children from Kashmir region can be asked, when do they use ‘Kangri’ under question-2 Each question is a sub-task Further related questions should be used to assist the learners to find the right answer and details.

The following type of questions are suitable for promoting thinking process

- (1) Why do people wear woolen clothes during winter?
- (2) What would happen if there is no rain?

Step - 3: READ

In this step students read to find answers to the questions Students look for specific information in the text to check comprehension If possible graphic aids (picture, diagram, illustration, etc) related to the passage can be used to facilitate student learning

Step - 4: RECITE

Students recite answers

Step - 5: REVIEW

The teacher leads students to check the answers They together check whether the answers to the questions make sense by linking to the main idea

Illustration - 2

*** Competency :** *Describes main characteristics of Indian climate*

Step - 1: SURVEY

Teacher and students together identifies the outline and the teacher writes the outline on the blackboard

Day	Night
Time	Time
Temperature	Temperature

Step - 2: Questions

The teacher provides a set of questions. The questions set the purpose for reading.

Questions	<u>Day light</u> 6-9, 9-12, 12-3, 3-6	<u>Night</u> 6-9, 9-12, 12-3, 3-6
<ol style="list-style-type: none">1 Which part of the day is less hot ?2 Which part of the day is more hot ?3 Which part of the night is cold ?4 When does the shadow become longer than the object ?5 When does the shadow become smaller than the object ?		

NOTE: Each question is sub-task. Depending on the situation additional questions can be formulated for details.

Step - 3: READ

In this stage, students read to find the answers to the questions. Teacher asks for specific information to check comprehensions. Teacher shows graphic aids to facilitate learning.

Step - 4: RECITE

Students recite answer(s).

Step - 5: REVIEW

Teacher and students together check whether the answers to the questions make sense by linking to the main idea.

Task for Teachers

Select a lesson from any class and illustrate how the ideas can be transacted using 'Analytical Reading' to attain the identified competency.

Training Modalities

- 1 Ask the trainees to read the material and discuss the basic components of the strategy and clarify doubts
- 2 Divide them in to groups (each group consisting of 4 to 5 members) and ask each group to prepare a lesson based on this strategy by selecting a lesson from primary level EVS text
- 3 Provide each group chart papers and sketch pens, and ask the groups to prepare the lesson format on the chart paper after discussions within the group
- 4 Monitor group work and facilitate within group discussions Also the timing and ask each group to display the chart on the wall
- 5 When the groups have completed their work, ask each group to see other's work displayed on the wall and note down the points for discussion
6. Hold a group discussion on coverage of main points, type and number of questions set and its relevance for a given class

PLANNED INFERENTIAL READING

What ?

It is a technique to improve students ability to make inferences as they read. Students learn to verify whether the information is actually present in the lesson and use that information to suggest the interpretation. The information may be present either directly or implicitly in the text. Certainly this strategy helps young learners to identify ideas, see relationships and make inferences. It provides essential conditions for active reading and learning. Certainly, it does promote thinking process.

Why ?

In the teaching learning process teacher tries to make the text comprehensible to students. Understanding the text will not expand their sphere of knowledge unless students develop ability to transfer it to new situation. When students develop the ability to infer, they add new knowledge to their existing cognitive structure. The development of such ability i.e. to make inference from a given lesson or text, can be easily achieved through this strategy.

How ?

You may be interested to know how does this strategy work. Well, it has two phases. Each phase has sequential steps. Let us examine each phase using an illustration based on a lesson from primary class.

*** Competency :** *Identifies the distribution of main natural resources and their importance for the country (specific to soil)*

PHASE - 1

STEP - 1:

The teacher presents a list of statements (Box 2.1) from the lesson that is being taught to the students. The statements given in the illustration are taken from the lesson on 'Soil'. Some of the statements are explicitly given and some are implied. Remember, statements are prepared in advance by the teacher based on a lesson that is to be taught.

Box 2.1

ILLUSTRATION

- 1 Soil is formed very slowly through the breaking of rocks
- 2 Soil of the northern plains is alluvial
- 3 Soil in the north-western part of the Deccan plateau is black
- 4 Manures are required for crop cultivation
- 5 Forests are very useful in preventing soil erosion

Step - 2 : The teacher instructs the students to read the given statements (Box 2.1) and then the paragraphs of the lesson which are related to the statements

Step - 3: In this step the teacher asks questions to students to say which statements are directly stated and which are implied

Step - 4: Students identify the direct statements from the text and also figure out the exact language that leads to the implied statement. In this illustration, statement '4' is implied and the rest are direct (explicit)

Well, the teacher has to give explanations whenever needed and ask precise questions to lead the students with cues to elicit the answer

PHASE-2

Step - 5: The teacher gives another list of statements (writes on the blackboard). These statements are not direct statements from the lesson (Box 2.2). None of the statements are directly given in the lesson. They are inferences and some are true and some are not. Students are required to identify which are true inferences and which are not, based on the information given in the lesson.

Box 2.2

ILLUSTRATION

- 1 Due to differences in soil conditions crop cultivation differs from region to region
- 2 Cotton grows in all types of soil
- 3 Manures are essential for increased crop production
- 4 Conservation of soil is essential for human being

Step - 6: Students read the list of statements and then read the lesson. Teacher allows discussion and clarifies meanings wherever required

Step - 7: Students say, which of the inferences are true and which are not true using the information given in the lesson. In this case, inference no 2 is not true and the rest are true

Be sure that statements are written to suit the level of the learners. Ask precise questions to lead the students

Task for Teachers

Select a lesson and illustrate the classroom transaction of the lesson using 'planned inferential reading' to attain the identified competency.

Training Modalities

- 1 Explain the basic purpose of the strategy and clarify their doubts
- 2 Ask the teachers (trainees) to list the need for promoting reading among learners
- 3 Group the listed points, label them and discuss
- 4 Ask the teachers to read the module on planned inferential reading
- 5 Hold a group discussion on how this strategy promotes reading
- 6 During the discussion identify the points which are left out by the participants (step 2 and 3) but covered under this strategy
- 7 Form groups and ask each group to complete the task given in Box 2.3

Module : - 3

LIST - GROUP - LABEL (L-G-L)

What ?

This is a technique to help students develop skills for thinking inductively about the subject matter. This is being done by listing words in a lesson, grouping them into categories based on relationships and labeling each group of words.

L G L helps students to relate earlier learned information with new information by arranging information in categories. It can be used as a pre-reading activity to find out how much learners already know and as a post-reading activity to evaluate what they have already learned from reading. It also serves as a motivation technique before reading and as reinforcement after reading. This strategy works well with large and small groups. However, small groups are preferred since it allows learners to cooperate in creating word categories. This strategy is implemented through sequential steps.

Why ?

You know well that every subject has a variety of concepts/words and they are extensively used in the text books. Some of the concepts have specific meaning related to the subject. Children need to understand these concepts/words clearly to comprehend the ideas as well as to increase the store house of their vocabulary. It also helps them to think precisely about the subject matter and communicate the in-built ideas in verbal and written form. This particular strategy makes the concept development easy for students.

How ?

When ideas are arranged in an ordered way teaching and learning become easy. This strategy works through a series of sequential steps. You can know more about it through the following illustration.

Illustration is based on a lesson on "**livestock**"

*** Competencies :**

- * Acquire vocabulary on animals and animal products*
- * Identifies the uses of animals in daily life*

BEFORE READING THE LESSON

Step - 1: The teacher writes on the top of the blackboard a term or word that identifies the lesson that is being studied. The identified word in this lesson is 'livestock'

Step - 2: The teacher asks students to tell words associated with livestock from their experience or knowledge. The teacher skillfully asks questions about the animals that the students have in their homes as well as their usefulness.

Step - 3: Teacher writes the words on the blackboard as the students say (Box 3.1)

Box 3.1

Cow	Sheep	Goat
Oxen	Lassy	Curd
Milk	Meat	Buffalo

Step - 4: Students are told to make groups of words with at least three words in each group and label (name) the group based on what they have in common (as in Box 3.2)

Box 3.2

<u>Animal</u>	<u>Food</u>
Cow	Milk
Oxen	Meat
Buffalo	Curd
Sheep	Lassy
Goat	

Step - 5: The teacher asks students to identify the reasons for grouping the word together. Using specific questions, the teacher helps students to state the relationship

of words to the group name (animal or food) in terms of what the words have in common

AFTER READING THE LESSON :

Step - 6: The teacher directs the students to read the lesson and identify the various livestock and their uses using appropriate questions, the teacher elicits key words by keeping in mind the major ideas. Teacher explains/discusses the meanings wherever required. As the students say the words, the teacher writes them on blackboard and expands the list of words given in step-3. They continue listing the words and the completed list will include many words from the lesson as shown below (Box 3.3)

Box 3.3

Cow	Buffalo	Goat
Milk	Sheep	Yak
Butter	Cheese	Hen
Camel	Buttermilk	Ploughing
Animal skin	Meat	Egg
Leveling fields	Irrigation of fields	Manure
Mule		
Hair	Wool	Shawl
Blanket	Woolen cloth	Carpet

Step - 7: Ask students to group the words into smaller groups and label each group that tells what the group words have in common (as in Box 3.4)

Box 3.4

<u>Livestock</u>	<u>Food items</u>	<u>Farming</u>	<u>Woolen Materials</u>
Cow	Milk	Ploughing	Hair
Buffalo	Butter	Leveling fields	Wool
Goat	Buttermilk	Irrigation of fields	Shawl
Sheep	Cheese	Manure	Blanket
Camel	Egg		Woolen cloth
Mule	Meat		Carpet
Yak			
Hen			

Step - 8: Discuss the relationship of words within each group, different animals and their uses, and the need to protect the animals. Pictures of domestic animals and pictures showing how they help us may be used as aids



ILLUSTRATION - 2

*** Competency :** *Identifies physical features of land*

Illustration is based on the lesson - '**Our Country - The Surface of its Land**'

BEFORE READING THE LESSON

Step - 1: Teacher writes the word 'landscape' on the black board and displays a picture of landscape

Step - 2: Teacher asks students to identify different physical features depicted in the picture. Teacher skillfully asks questions on local physical features which are familiar to students

Step - 3: Teacher writes the words on the black board as the students say
Mountain, Plateau, River, Plain, Lake, Dessert, Pond

Step - 4: Students are told to do grouping of words and label the groups based on commonality they find or relationship among words. They group the words and label as shown below

<u>Land feature</u>	<u>Water bodies</u>
Mountain	River
Plateau	Lake
Plain	Pond
Dessert	

Step - 5: Teacher discusses the characteristics of physical features and the reasons of grouping the words

AFTER READING THE LESSON

Step - 6: Teacher directs the students to see the physical map of India, read the lesson and identify the physical features depicted in the map. Teacher writes the words on the black board as the students say and expands the list (step - 3)

Mountain,	Plateau,	River,	Sea
Plain	Peak	Lake	Bay
dessert	Island		

Step - 7: Ask students to group words and label each group

<u>Land features</u>	<u>Water bodies</u>
Mountain	River
Plateau	Lake
Peak	Bay
Island	Sea
Desert	
Plain	

Step - 8: Discuss the relationship of words within each group, their location on the map of India and their influence on local climate. Models or maps depicting physical features may be used as aids.

Task for Teachers

Illustrate the use of L-G-L by choosing a lesson to attain the identified competency.

Training Modality

- 1 Divide the participants into groups and choose the group leader
- 2 Instruct the group leader to discuss the steps in detail with their group members, and then prepare a lesson based on L-G-L strategy on any class (I to V) by discussing within the group
- 3 Organise a simulative practice situation where the group leader presents the lesson step by step using the other participants as students
- 4 Trainers should observe the relevance of lesson to particular class, the steps they have explained and the way the words are categorised. Provide feedback after each presentation for self reflection.

Module : - 4

STRUCTURED GRAPHICS

What ?

Graphic organiser is a hierarchically constructed strategy helping students to locate the important information. Further, it helps them to connect and organise main ideas and supporting details in a lesson. Using a graphic organiser teacher helps students to recognise the text structure. This provides learners a situation to attend, think actively about the ideas. Graphic organiser helps learners to select important information and look for details. It helps in comprehending and remembering information. This approach works well for low ability students, though average and above average students make gains. It also facilitates note taking.

Why ?

Each lesson in the text book is based on some content which are explained in a set of paragraphs. However, there is a hidden structure in the lesson. It means there are some key points and some supported information for those key points. If these structures are not made clear and the relevant information are considered, it is likely that students would mix up the linking information and they would not attain conceptual clarity. This particular strategy is more useful for identifying the structure as well as supportive information and for connecting the various concepts/ideas.

How ?

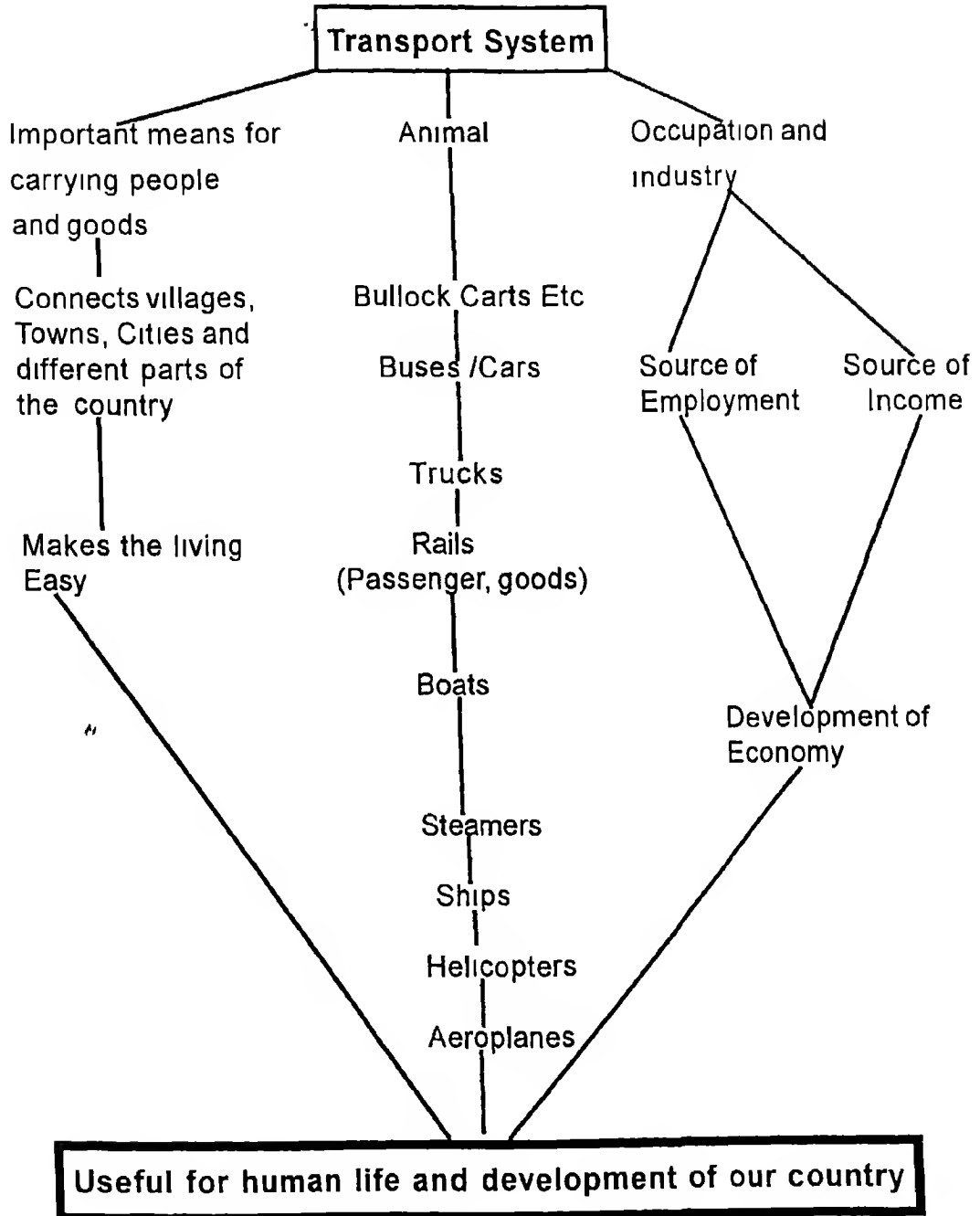
You may be curious to know how it works. Well, the strategy is performed through a series of steps as explained below using an illustration based on the lesson "*Transportation*".

*** Competency :** *Identifies the major means of transport (land, sea and air) and makes inferences on the ways in which different means of transport affect the lives of people and our country's economy*

Step - 1: The teacher selects in advance the key words and phrases that signal the main and supportive ideas and prepares a graphic organiser. Graphic organiser is a visual aid for displaying the connections of ideas in a lesson and for clarity please read

the illustration given below

Graphic Organiser



Step - 2: The teacher displays the graphic organiser in the class

Step - 3: Teacher asks questions to help students to develop the phrases or words used in the graphic organiser into ideas. Students should be encouraged to tell as well as write the ideas. Some of the questions on the above graphic organiser are given below

QUESTIONS

- 1 Which animals are used to pull the cart ?
- 2 What type of transport is used at your place (Village/Town/City) ?
- 3 List the different mode of land transport
4. List the following transport according to their types
Bicycle, Bus, Ship, Train, Steamer, Boat, Aeroplane, Truck, Ship, Auto
Rickshaw, Helicopter
- 5 What type of transport you use to visit different places ?
- 6 What type of transport is used in your place to carry agricultural products to the market ?
7. How does the transport system help us in increasing our income ?
8. What type of transport people use to reach distant places quickly ?
9. How are the means of transport useful for our economy and life ?

Step - 4: By asking questions, the teacher encourages students to develop the ideas using the visual aid. Students are told to focus attention on phrases given in the graphic organiser and they work in pairs. One student reads the first question and the other finds out the answer. Both discuss the answer and write down. Students reverse their roles in the second question and following this format, each pair answers all questions and develop the ideas.

Step - 5: The teacher selects another passage within the lesson or unit and repeats the process. However, in this situation the teacher first introduces the passage and presents the graphic organiser.

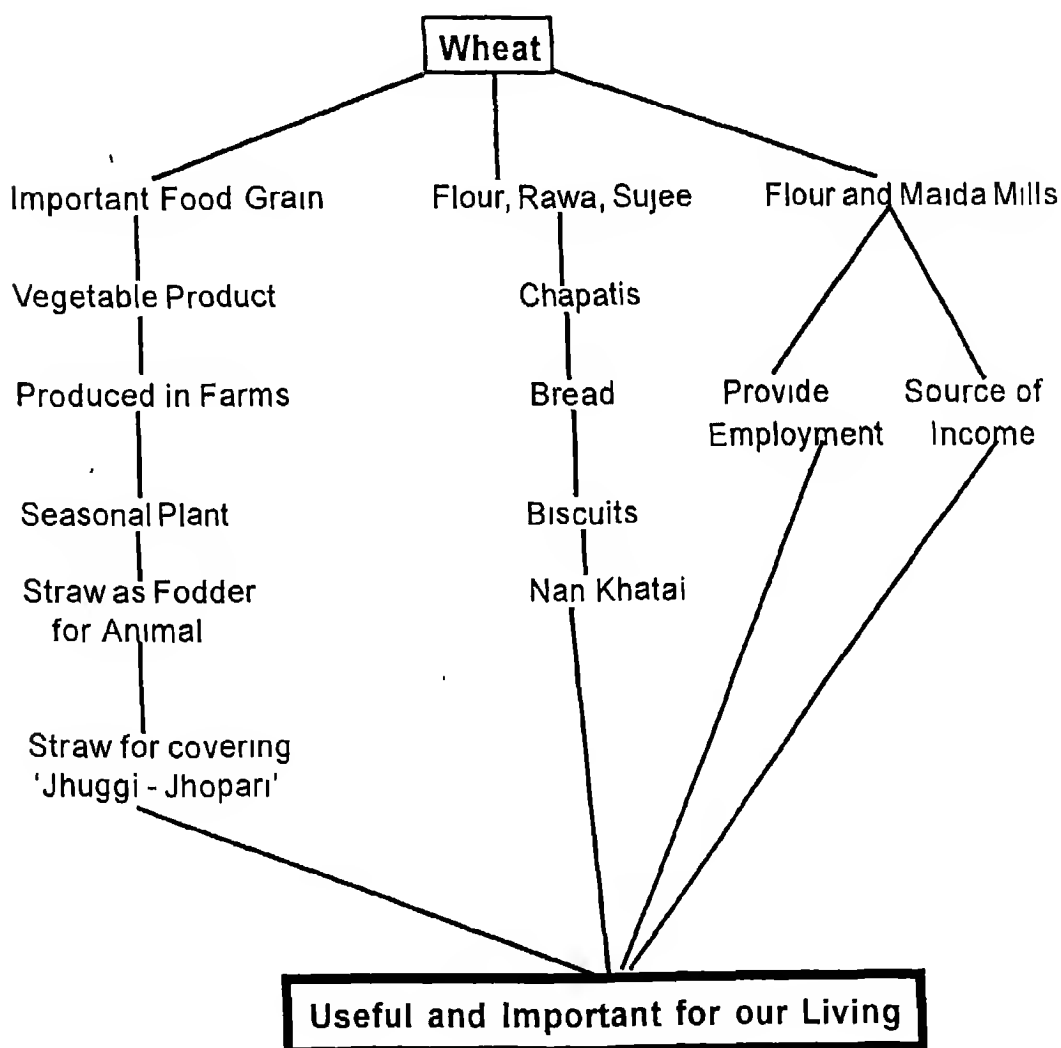
ILLUSTRATION - 2

* **Competency :** *Identifies the major crops of our country and their uses in our life*

Illustration is based on the lesson on '*Wheat*'.

Present the graphic organiser and ask questions and hold discussions for developing the phrases or words into ideas. Help the students to see the relationship among the ideas and make inferences.

Graphic Organiser



QUESTIONS

- 1 What food grain is used in your home for preparing food ?
- 2 Which food grain is commonly used by most of the people in your state ?
- 3 How is wheat useful for human being ?
- 4 Where does wheat grow ?
- 5 List at least 5 food items prepared out of wheat
- 6 List the uses of wheat straw
- 7 How does a farmer make a living by cultivating wheat ?
- 8 How does wheat production help in the increase of income ?
- 9 How does wheat production help in employment ?

Task for Teachers

Select a lesson and illustrate how the lesson can be transacted using structured graphics to attain the identified competency.

Training Modalities

- 1 Ask the trainees to read the material and discuss the basic components of the strategy and clarify their doubts
- 2 Divide them in to groups (each group consisting of 4 to 5 members) and ask each group to prepare a lesson based on this strategy by selecting a lesson from primary level EVS text
- 3 Provide each group chart papers and sketch pens and ask the groups to prepare the lesson format on the chart paper after discussions within the group
- 4 Monitor group work and facilitate within group discussions. Also the timing and ask each group to display the chart on the wall
- 5 When the groups have completed their work, ask each group to see other's work displayed on the wall and note down the points for discussion
- 6 Hold a group discussion on coverage of main points, type and number of questions set and its relevance for particular class

Module: - 5
CLUSTERING

What ?

It is a strategy where associated words (ideas) are freely identified and related. Starting with a word or phrase selected from a lesson, the teacher helps learners to identify a cluster of words and understand the relationship and meaning. It facilitates in vocabulary building, seeing relations between words and organising thought. At class IV or V level learners can be asked to write or tell a passage or a story based on the cluster.

Why ?

If reading is planned well, it helps learners to connect the related information and understand the lesson clearly. It expands their existing knowledge and promotes thinking. The students should also be able to express their ideas in writing. The clustering technique will be helpful for promoting both reading and writing.

How ?

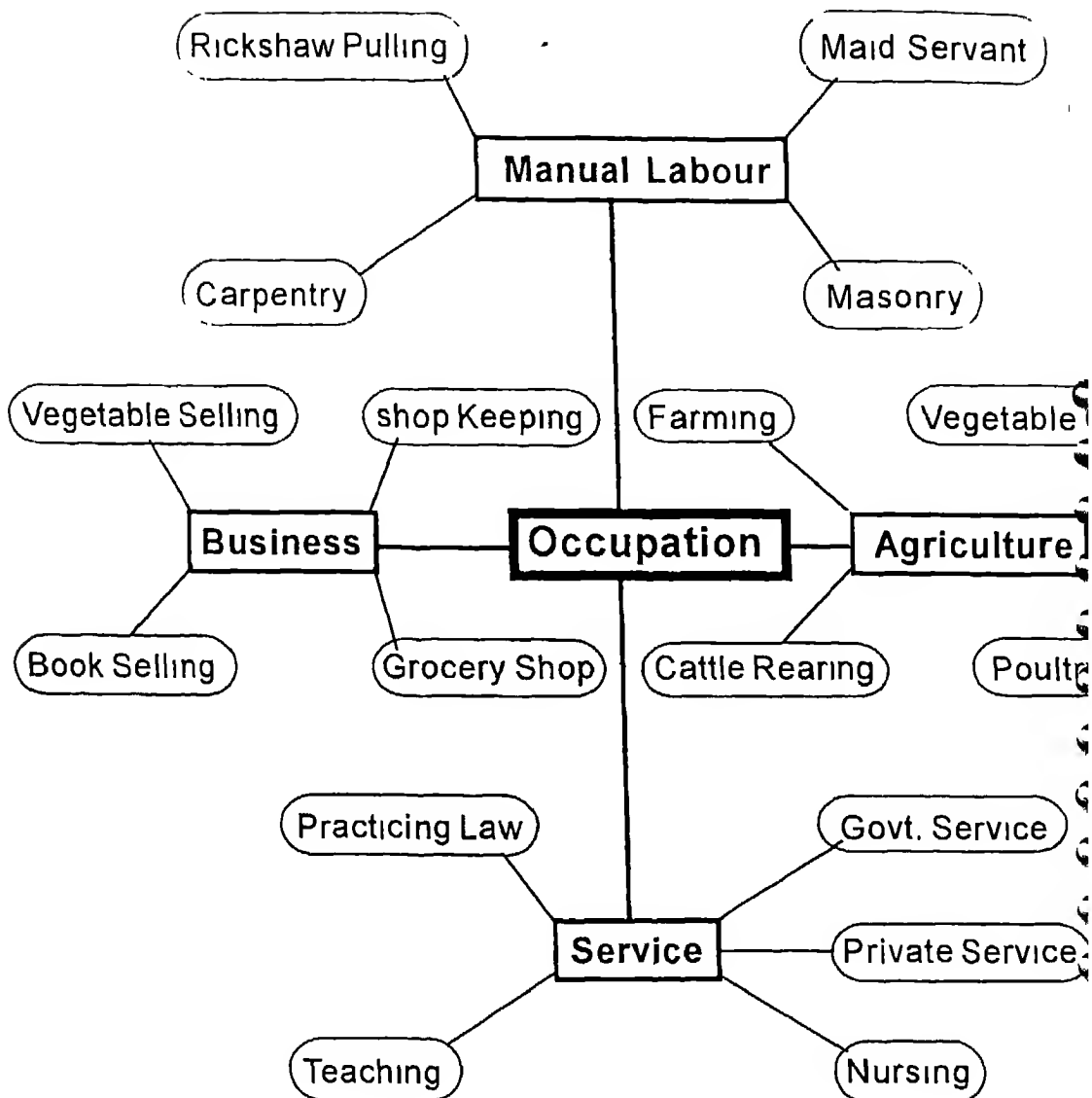
The process of implementation of this strategy in regular classroom is illustrated in sequential steps. The illustration is based on the lesson on "Our Occupation".

*** Competency :** *Identifies and differentiates the occupations that are being practised in the neighbourhood*

Step - 1: The teacher introduces the lesson and chooses a keyword or phrase from the lesson. The word, 'occupation', is chosen as the keyword from the lesson and the teacher writes the keyword on the center of the blackboard and circles it.

Step - 2: The teacher directs the students to read the lesson and identify words associated with the keyword. At the initial stage teacher says the related word. Such words are circled and connecting lines are drawn to show the association (see the illustration)

Illustration on Clustering



Step - 3: Teacher encourages students to add words to the cluster from Well, the students can also be permitted to tell the related word which are the lesson With skillful questioning the teacher can direct the students connecting words from the lesson and complete the cluster As the stud words, the teacher writes the connecting words and creates the clust depends on the type of questions the teacher asks and he/she leads th identifying the words, clarifying the meaning, grouping the words and co associated words and groups Questions, for example, can be asked on th

of their parents, people in their neighbourhood and importance of various occupation on our life

Task for Teachers

Choose a lesson and illustrate how the lesson can be transacted using clustering to attain the relevant competency.

Training Modality

- 1 Ask the trainees to read the material and discuss the basic components of the strategy and clarify their doubts
- 2 Divide them in to groups (each group consisting of 4 to 5 members) and ask each group to prepare a lesson based on this strategy by selecting a lesson from primary level EVS text
- 3 Provide each group chart papers and sketch pens and ask the groups to prepare the lesson format on the chart paper after discussions within the group
- 4 Monitor group work and facilitate within group discussions Also the timing and ask each group to display the chart on the wall
- 5 When the groups have completed their work, ask each group to see other's work displayed on the wall and note down the points for discussion.
- 6 Hold a group discussion on coverage of main points, type and number of questions set and its relevance for particular class

Module : - 6
CONCEPT MAPPING

What ?

It is a technique for internalizing concepts. It helps students to understand the relationship and connections of various aspects of a concept or concepts in terms of features, cause - effect, compare - contrast, sequence, etc. Concept mapping also helps teachers for organising information for presentation. This can be used either before or during or after reading a lesson. Concept mapping involves a series of activities through phases.

Why ?

While teaching a lesson, teachers usually explain the various concepts existing in the content. Explanations are often provided verbally. When the concepts are explained/illustrated through diagrams connecting major and sub concepts indicating their relationships, it will be easy for learners to understand the concepts. This helps in presenting the concepts meaningfully and promotes retention process of students.

How ?

The method of performing this strategy is explained below using an illustration based on the lesson on "communication". It is performed in two phases through a series of steps.

Phase-I : Activities to prepare for concept mapping.

Step - 1: Have children close their eyes and ask them if they can see the picture of 'cow' and 'mango' in mind when the teacher says the words, 'cow' and 'mango'. Use object words initially.

Step - 2: Write each word on the blackboard after the children respond and ask children for more examples.

Step - 3: Continue with 'event' words such as eating, running, crying, etc.

Step - 4: Give unfamiliar words and ask them if they can see a picture in their mind.

Step - 5: Help children to identify those words conveying meanings when words are represented by pictures or images in their minds

Step - 6: Introduce the 'concept' as the word we use to mean some kind of object or event. Cite examples

Step - 7: Words such as is, are, through, by, has etc. are linking words and are not concepts. Ask whether these words bring a picture in mind

Step - 8: Ask for additional examples of linking words

Step - 9: Construct short sentences using two concepts and linking words e.g., grass is green, chair is made of wood, rain brings water

Step - 10: The teacher introduces students to the lesson to be learned - 'Communication'

Step - 11: The teacher guides the students in reading the lesson and asks them to identify the concepts and linking words. It is easier to read when the concepts are in mind

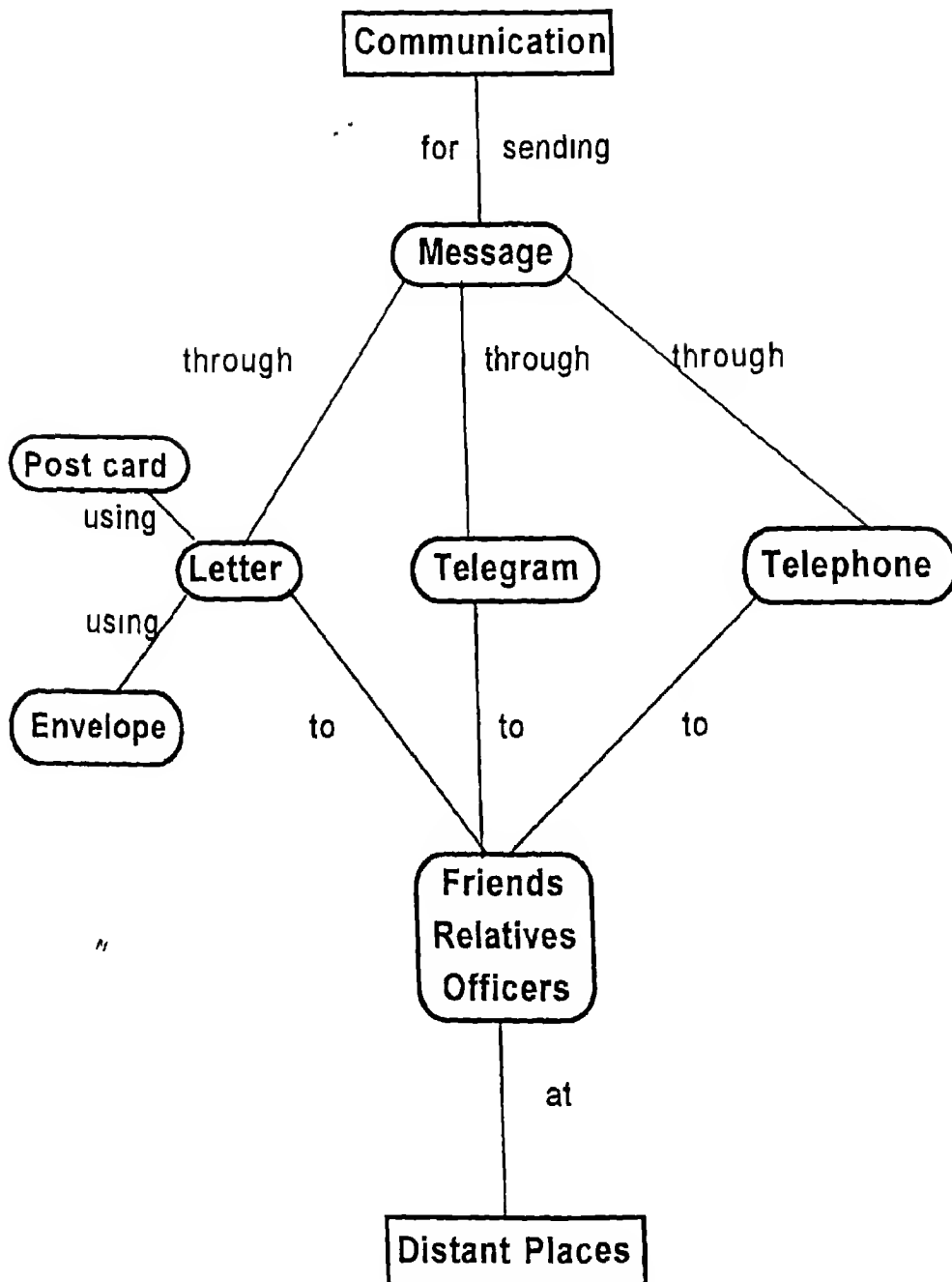
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Phase-II : Concept mapping activities.

Step - 12: Make a list of 10 to 12 related concept words identified by the students from the lesson

Step - 13: Draw a concept map on the blackboard using the identified concept words (see the diagram on concept mapping)

Concept Mapping



Step - 14: Have the children read the short sentences shown on the map

Step - 15: Have the children copy the map

Step - 16: Give a list of related words such as money order, parcel, radio, newspaper, etc and have them construct their own maps

Step - 17 Ask children to speak or write a story based on the concept map and discuss

Task for Teachers

Select a lesson and illustrate the method of transacting the same using the concept mapping technique.

Training Modality

- 1 Choose a lesson (or part) from the text book for the concept mapping exercise
- 2 Ask the teachers to map the concepts as per guidelines given in the reading material
- 3 Instruct them to summarize the concept map in small groups
- 4 A representative of each small group will share it with the rest of the groups
- 5 Discuss the difficulties confronted by each group and provide guidance to find solutions
- 6 If possible, arrange a simulated teaching situation for each group to demonstrate the concept mapping strategy

Module : - 7

CONSTRUCT

What ?

Construct strategy focuses on expanding a concept or the main idea into details and related concepts and ideas, and understand the complex relations. It helps students to see how complex concepts in a lesson are related. It facilitates students in understanding the relational ties among concepts and explain the relations.

Why ?

The goal of this strategy is approximately similar to concept mapping. However, it differs in the process of using the strategy. Specifically it deals with the complex concept and its relations with other concepts and ideas. When students read the lesson the process of identification of complex concept and formation of its structure by linking to relational concepts make them active participants in learning. It will be easy for them to remember this concept.

How ?

The steps of implementation are illustrated below based on a lesson on "Our Occupation"

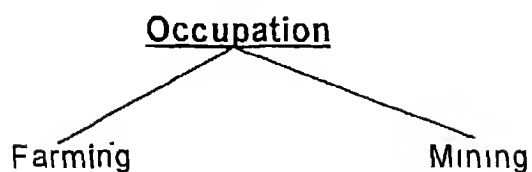
*** Competency :** *Identifies and differentiates different occupations practised*

Step - 1: The teacher tells students that they together will study the lesson by organising the ideas into a diagram. Students are told to read each section of the lesson repeatedly three times.

Step - 2: Teacher guides the students to read the lesson. They are told to attend to the titles, subtitles, main idea, important words, etc. and help the students to identify the main idea of the lesson.

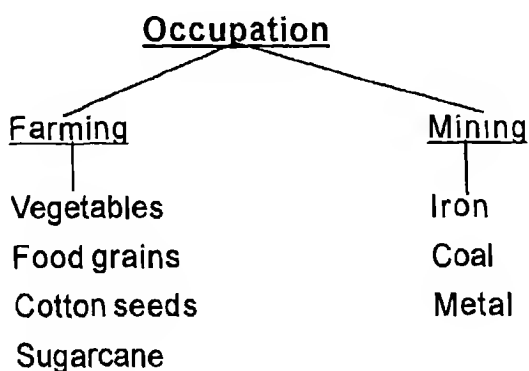
At this stage, the diagram may consist of only the major ideas.

ILLUSTRATION

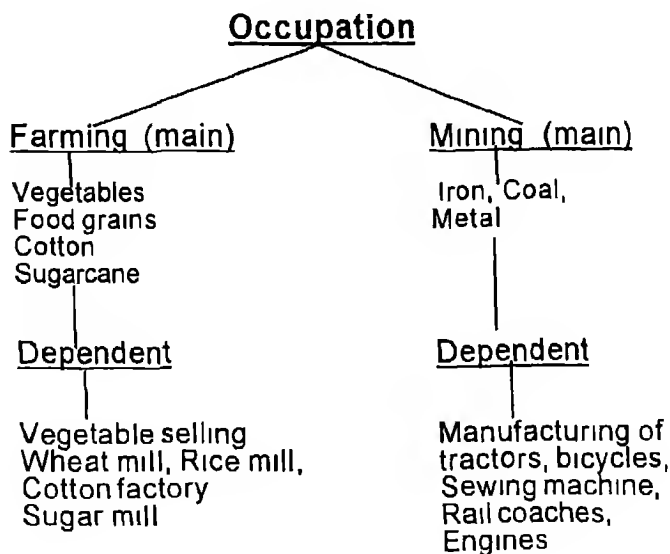


The teacher draws the diagram using the information provided by the students

Step - 3: Ask students to **read again** (second reading) and look for details. Teacher may ask questions to elicit the relevant information and develops the diagram as illustrated below



Step - 4: During the third reading, teacher helps students to understand the text which was not understood well before. The focus is on details and the diagram is further elaborated



The class proceeds through the next section of the lesson by reading, understanding and adding to the diagram until the lesson is completed (Pictures of various occupations can also be used to help the students to get into the details)

Tasks for Teachers

Select a lesson and illustrate its transaction based on 'construct' strategy to attain the selected competency.

Training Modality

- 1 Discuss the reading materials with participants
- 2 Allow them to develop a construct from a lesson of any class (specially, III, IV, V) in small group.
- 3 In large group discuss the following issues
 - a What are the factors responsible for students' understanding and retention of the text ?
 - b How does 'construct' strategy is useful for better understanding and retention of text ?
 - c How to apply this strategy in large classroom situation ?

Module: - 8
PYRAMIDING

What ?

Pyramiding is useful for organising subject matter hierarchically which means that higher order and lower order information can be arranged sequentially. It is an effective teaching technique and helps students to search, ask, arrange and label information and activity involved in the learning process. Pyramiding can be used in such lessons where the content is hierarchical in nature.

Why ?

Ideas are hierarchically organised. At the primary stage hierarchical organisation of ideas can be found in certain lessons at higher class (class V). If the students are tuned to identify the hierarchical nature of ideas it would facilitate meaningful learning. It simply means that students should be given situations to relate major and subordinate information or ideas. It is important for promoting higher order thinking. Pyramiding is a strategy to promote learning in this form.

How ?

This strategy is performed through a series of steps.

Step - 1: The Teacher introduces the lesson and directs the students to read the lesson.

Step - 2: The teacher guides students in identifying the information and asks them to tell as they identify the information.

Step - 3: The teacher writes the information on a slip of paper.

Slip-1

Occupations

Slip-2

Postman
gives
letters
telegram
parcel

Slip-4

Teacher
teaches
to read
and write
and gives
knowledge

Slip -3

Doctor
gives
medicine
and cure
diseases

Slip-7

Farmer
cultivates
land and
produces
food grains

Slip-6

Policeman
maintains
law and
orders and
provides
security

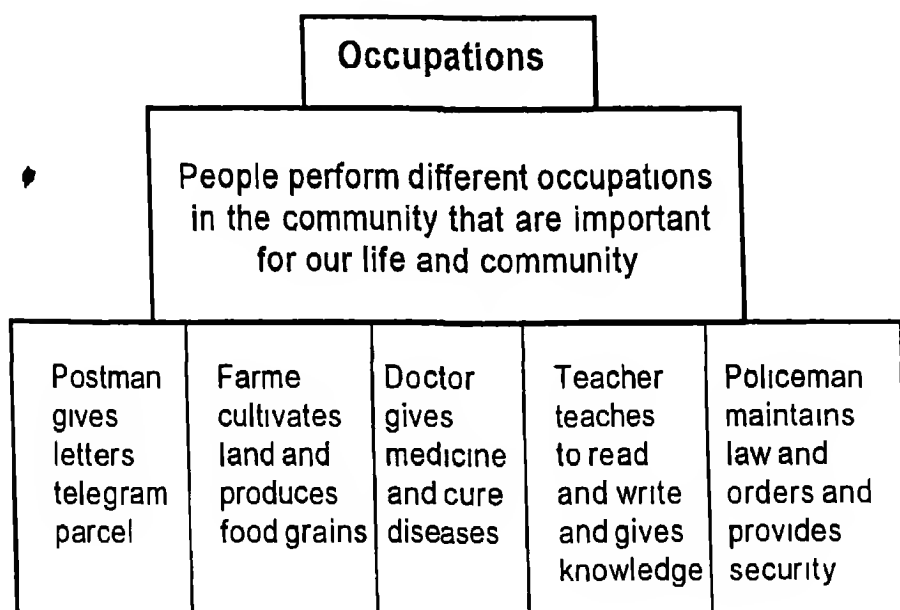
Slip-5

People perform different
occupations in the community
that are important for our
life and community

Step - 4: Upon completing the exercise of locating facts, the teacher calls on students to sort out the slips into groups in terms of major information (higher order) and subordinate information (lower order)

Step - 5: The teacher places the slips showing lower order information or writes the same horizontally on the blackboard which forms the base line. Slips showing higher order information are placed horizontally above the base line forming another line. Next higher order slips are kept above the second line and so on. Thus, create a pyramid like structure to show the relations between major and subordinate information

ILLUSTRATION



Tasks for Teachers

Select a lesson and illustrate its transaction using 'Pyramiding' technique.

Training Modality

- 1 Ask the trainees to read the material and discuss the basic components of the strategy and clarify their doubts
- 2 Divide them in to groups (each group consisting of 4 to 5 members) and ask each group to prepare a lesson based on this strategy by selecting a lesson from primary level EVS text
- 3 Provide each group chart papers and sketch pens and ask the groups to prepare the lesson format on the chart paper after discussions within the group
- 4 Monitor group work and facilitate within group discussions Also the timing and ask each group to display the chart on the wall
- 5 When the groups have completed their work, ask each group to see other's work displayed on the wall and note down the points for discussion
- 6 Hold a group discussion on coverage of main points and its relevance for particular class

What ?

It is a technique which engages students to investigate a problem by collecting and relating data or information logically and find solution to the problem or explain why things happen the way they do. It is a student oriented strategy which requires active participation in questioning, exploring the ideas and thinking logically. This technique is used for

- * acquiring new facts
- * developing problem solving skills
- * stimulating thinking.

Why ?

At early stage children enquire about their surrounding by asking many simple question(s). Answers to these questions not only develop their understanding about the world around them but also nurture their logical thinking. As children grow the inquiring situations as well as the skills involved are complex. If we provide situations for inquiring at the early stages of learning with proper guidance it would facilitate students to develop their skills and enrich the way they seek knowledge.

How ?

This strategy consists of sequential steps and with young children (Primary level) the steps are modified to include the following

1. Describing a puzzling event
2. Questioning and suggesting solutions
3. Collecting data
4. Summarizing

The strategy is illustrated using the content from social studies lesson on "***Our Struggle for Independence***"

ILLUSTRATION

Britain is located in north-western Europe and is small in size as compared to

India India is situated in south Asia and it is a large country Do You know that India, a large country was the colony of Britain, a small country located far away from India How did a small country located thousands of miles away succeeded in establishing its rule over India? The question is how did India become a colony of Britain?

Let us look into the data/information sheet

Data and Information Sheet

- 1 India was a British colony for a long time
- 2 Indian goods-spices, silk, muslin and cotton were famous in the world and there was a great demand for these items
- 3 Many European powers like Portuguese, Dutch, French and British came to India for trade So important and profitable was their trade with India that these European powers fought among themselves Britishers ultimately succeeded in expelling the other European powers
- 4 A group of merchants formed East India company in Britain to carry trade with India
- 5 Mughal power was gradually weakened and number of kingdoms emerged in many parts of India
- 6 Major kingdoms in India consisted of Mughal, Marathas, Hyderabad, Awadh, Mysore and Bengal
- 7 The rulers of these kingdoms often fought among themselves
- 8 Taking the advantage of infighting among the Indian rulers, Britishers used them to fight against each other.
- 9 Britain was ruled by one ruler There were many kings in India and there was no unity among themselves
10. Britain become economically advanced due to industrialisation
- 11 In the field of science Britain had made rapid progress It helped Britain to become a military power with well equipped navy in the world
- 12 Neglect of science and education had kept India a weak and powerless country
- 13 The conquest of India by Britain began when the East India company defeated the Nawab of Bengal in the Battle of Plassey in 1757
- 14 Within 100 years, Britishers conquered India They succeeded in it by using advanced weapons and arms Lack of unity among the Indian kings also helped them much
- 15 Britishers started taking wealth from India
- 16 Gradually Indian people became aware about the evils of British rule

Step - 1: Describe the puzzling events or problem

The teacher introduces the lesson and presents the data or information sheet Teacher explains the given information and instructs students to ask questions to clarify the details Teacher helps students to focus on the problem - how did India become the colony of Britain?

Step - 2: Questioning and suggesting solutions

The focus is on finding solution to the problem. The teacher starts slowly with a simple game using 'Yes' or 'No' questions based on the given information. Encourage students to ask such questions to find solutions. Helps students to focus on the main events or information related to the problem. Use visual materials or aids and give clues where ever possible to young children to reduce the burden on memory. Through questioning assist students to suggest possible solutions.

Step - 3: Collecting data

At this, the teacher helps students to locate supportive information or data from the data sheet for the solution suggested by them. Suppose one student says, military superiority as the solution to the problem, he/she is required to identify supportive, informative information from the data sheet. The search continues till the related information and data are found out.

Step - 4: Summarizing

In this step, the teacher asks students to state the data related to the solution identified from the data sheet and explain the solution to the problem. The data such as Britain's economic advancement, military power with well equipped navy, advanced weapons and arms, and advancements in science as well as in the case of India, neglect of science and education, lack of unity among Indian kings etc. are important for finding the answer to the problem.

Enquire provides learning situations for

- * Manipulation of information or data.
- * Involvement of students in the learning process
- * Development of skills to identify problem, ask questions, suggest solution, verify solutions based on data and make summary.

Tasks for Teachers

Select a lesson or content and illustrate how the same can be transacted using the principles of enquiry.

Training Modality

- 1 Ask the trainees to read the material and discuss the basic components of the strategy and clarify their doubts
- 2 Divide them in to groups (each group consisting of 4 to 5 members) and ask each group to prepare a lesson based on this strategy by selecting a lesson from primary level EVS text
- 3 Provide each group chart papers and sketch pens and ask the groups to prepare the lesson format on the chart paper after discussions within the group
- 4 Monitor group work and facilitate within group discussions. Also the timing and ask each group to display the chart on the wall
- 5 When the groups have completed their work, ask each group to see other's work displayed on the wall and note down the points for discussion
- 6 Hold a group discussion on coverage of main points and its relevance for particular class

Module : - 10
COOPERATIVE LEARNING

Being a teacher, our task is to create optimum learning among students. A single strategy is not a suitable answer. Every strategy has its strength and weakness. Let us examine the questions written in the box.

Search for Answer

- 1 Do you think that all students learn in the same manner ?
- 2 Do you know that students are different from each other ?
- 3 Is the teacher only source of learning for students in the classroom ?
- 4 Is it possible that a single strategy will be able to create maximum learning among all students ?
- 5 Is not it essential to focus on affective behaviour while teaching ?

Being an experienced teacher, hopefully you may conclude that students need alternative strategies to learn different subject matter. Cooperative learning is the appropriate answer in this situation.

What ?

Cooperative learning strategy is a systematic and structured one directed to achieve a common goal by a heterogeneous group. In cooperative learning, learning is facilitated through cooperation with the idea that the children can learn better through interaction with their peers.

This strategy by its name denotes that learning takes place through cooperation. The question in cooperation by whom ? In classroom situation teacher helps the students. Though the teacher's help is essential, the focus is on student-student cooperation. It means students will work in group and help each other to master the academic materials. Here the teacher works as a facilitator and directs pupils as a source of their own learning.

BASIC FEATURES

1. Students work in team and performs specific task to master the academic tasks.
2. Teams are formed by selecting students of different achievement level including disadvantaged children. All members will be equally distributed in all team.
3. Team members are interdependent in functioning.
4. Rewards are group oriented.

Why ?

1. It facilitates cognitive achievement
2. It can be applied to learning of subjects like
 - Mathematics
 - Science
 - Social studies
 - Music and
 - Language
3. It is effective to
 - meet individual difference
 - develop both basic and higher level skills
 - large sized classroom situation
 - multigarde teaching situation
4. It also promotes learning affective behaviour

How ?

Though there are different models, the basic features of principles underlying cooperative learning strategy are same. Let us examine one such model

A: STUDENTS TEAM ACHIEVEMENT DIVISION (STAD)

Basic Description

This method of cooperative learning is the simplest one. In the beginning teacher presents information either verbally or through text. Then students of a given class are divided into three or four learning teams where each team consists of boys and girls, if applicable, various cast groups, and of high, average and low achievers. Each team members try to master academic materials and help each other through tutoring or quizzing one another or carrying on team discussion. Individually, students take weekly or biweekly objective tests/quizzes.

Each individual student's score is compared to the previous score (not for the first time) and these scores are summed up to obtain the team score. The team having high score is recognized either by displaying in the school wall or giving a prize etc.

This approach is systematic, therefore, teacher has to proceed through certain steps. Let us examine what are those steps and what to do at each step. The contents are taken from EVS-1 as example.

Content : *How India won its Freedom.* (Class V)

Steps - 1: Provide objectives and create learning readiness

In this phase first the teacher decides the objectives of the task supposed to be achieved. In EVS - 1 those objectives are explicitly mentioned in terms of competencies. For example, the competency taken here is "Identifies the reasons which lead to the struggle for independence".

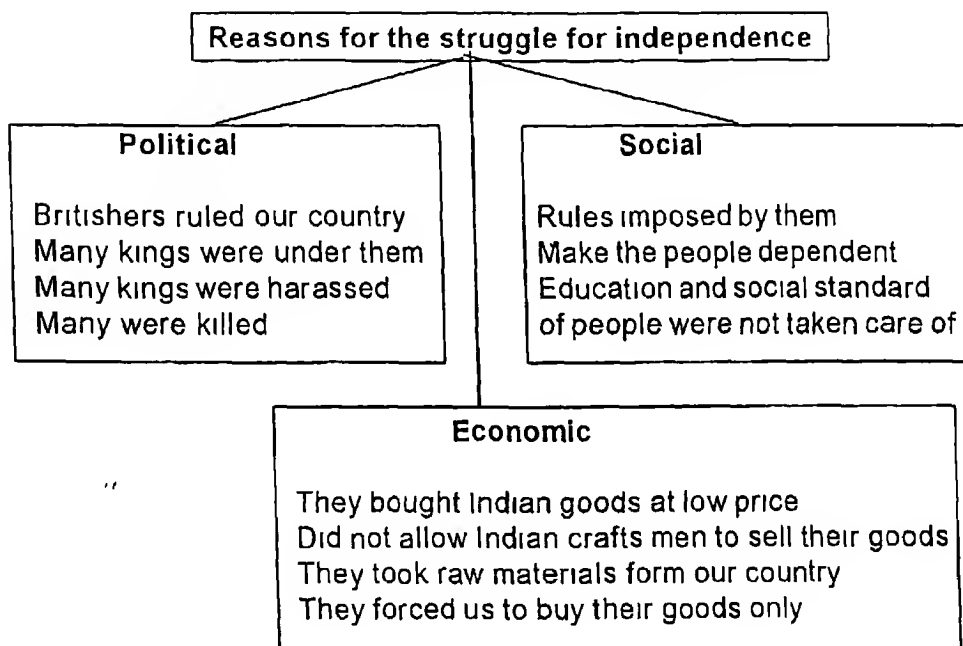
The teacher asks students, "You know why we observe 15th August every year?" Majority students would reply "We observe it as Independence day." Linking to that answer teacher would say "Independence means we are governing our own country which was previously ruled by Britishers. To get this freedom we struggled a lot. You will be surprised to know that many people suffered and sacrificed a lot for the freedom of our country. Though they were people like us but they had certain values and determination to fight for justice and common benefit. Let us discuss what are the causes that inspired them to fight for freedom."

Teachers' Role

- 1 To make students clear about what they are going to do
- 2 Create learning readiness among the students

Step - 2 : Present Information

Before teaching, teacher sort out different reasons from the topic in sequence and present structurally as below



Each point should be described by the teacher with example and make the students clear about the causes in brief. The details will be worked out by the students in team.

Teachers' Role

- 1 Structurally and sequentially present the lesson for better comprehension
- 2 Between explanations ask questions to involve students
- 3 Use humour to attract the attention of students

Steps - 3 : Organise students in learning team

In this step students are directed to form learning team. The criteria for team formation depends totally on the objectives of the teacher. For example if teacher intend to facilitate social interactions he/she can mix students of different economic background. For academic purpose the teacher should see that each team should be fairly represented by boys and girls, or high, average and low achievement levels. Based on students's achievement level learning teams can be formed. To save the time for forming team, teacher can write the instruction clearly on the black board. First, label the team by the name of some eminent person who students know. It is not a standard rule, but to motivate students it will be effective. For example see the illustration given in Box

GROUPS

Raman 1	Newton 2	Einstein 3	Bose 4	Khurana 5
Role Number				
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40

Instruction to Students

- 1 Quickly move to the place of your team
- 2 Choose your team leader (either by students or teacher)
- 3 Spend 20 minutes on the academic assignment
- 4 Work according to the instruction

Teachers' Role

- 1 Know the students' background and decide the criteria for forming the team
- 2 See that students join the assigned team at the earliest
- 3 Ensure that students understand the instruction about what to do
- 4 If any learning material/ text book is required, ensure that every students possesses such materials

Step - 4 : Assist team work and study

Ask the students to open the topic "How India won its Freedom" Mark the page which contains the information about different reasons for freedom fighting Ask them to read the material for 10 minutes Direct the teams to form pairs and in each pair one should ask questions and the other should answer them Instruct the high achievers to ensure that the team members perform the assigned task continue it for five minutes Finally direct the team to summarize all the points From time to time visit each team and monitor the activity

Teachers' Role

- 1 Act as facilitator rather than an interpreter
- 2 Remind the students about the tasks and monitor from time to time
- 3 Inform that each member will be given objectives test and the score of each individual student will be summed up for team score

Step - 5 : Administer test

In this phase the teacher has to test the mastery of academic task by each student It will better if the teacher prepares the objective test well in advance After completion of the task, regroup the students to form a large team or shuffle the members of various team to check copying Administer the objective test prepared by the teacher and score them

Teachers' Role

- 1 Prepare the objective test before hand keeping in mind the component included in the competency
- 2 Prepare the item to test the rate of learning and accuracy
- 3 See that students should not copy from each other

Step - 6 : Recognize the Achievement

Score each student's answer and calculate the total score If you want to see the improvement of students, for the first time, it will be treated as basal score The test score obtained for second time will be compared to the basal score and the gain in the second test will indicate the improvement over the first one The current score of each

Teacher's Role

- 1 Select the task which can cover at least in two periods
- 2 Present the contributions of leaders on time line
- 3 Explain their work and place referring to the leader's name immediately
- 4 Repeat the statement which indicates the key element of the explanation.
- 5 Collect the pictures of such leaders and display at the time of explanation

Step - 3 : Organize students in learning team

The procedure for team formation is same as Step - 3 of STAD. The only difference is in terms of identifying an expert team by selecting good students from each team. This lesson is divided into three groups. Therefore, it is better to divide students into three teams. Select three good students from each team. Then decide the topic and write the rules on the blackboard.

Instruction on Black Board

1. Write the names of expert team against the name of each three house
2. The expert team having the same task first meet together and discuss the task and master the content. Spend 20 minutes on it
3. Each team member should return to their respective team and teach other students the task they have learned.

Role of teacher

- 1 Choose the students who are high achievers, as expert team
- 2 Examine that high achievers should be fairly represented in each team
- 3 See that each team members should change to other team
- 4 Make space for expert team to discuss the task
5. Select task to engage other students while expert team continue with their discussion
- 6 Ensure that students understand the instruction about what to do
- 7 All students should possess the learning materials (Book)

Step - 4 : Assist team work and study

The whole task is divided in to three parts and three students are selected from each team. Altogether nine students constitute the expert team. Each part of the task can be assigned to a team of three students, one from each team. Instruct the expert team that "You, three students have to master this portion thoroughly after discussing with each other and after completing the task, return to your team and teach rest of the students the same content. You should see that all your team members learn the content well". Allow the expert team to learn the part of the lesson for 15 minutes. During this time ask rest of the team members to read the content silently and note down the names of freedom fighters in their note book. When expert teams will complete their respective assignment ask them to return to their respective team and three expert team member should share their learning turn by turn. Also expert team students can ask questions to other students which will ensure the content mastery. The task of the teacher is to monitor the activities of each team.

Teachers' Role

1. Helps the expert team to master the respective part of the lesson and note down the key element
2. Also monitors team members work
3. Informs that each member will be given an objective test and the scores of each individual students is added to form team score. The team with highest score will be rewarded

Step - 5 : Administer the Test

Step - 6 : Recognize the achievement

Both these steps are same as the corresponding steps of STAD Method.

Tasks of the Teachers

Select a content and illustrate its classroom transaction using cooperative learning strategy.

Training Modality

Organise a panel discussion with the participants as the panelists

TEACHING OF ENGLISH AT PRIMARY STAGE

Dr. S. k Pranami

OVERVIEW

Language learning at the primary stage is crucial to not only meaningful learning in all subject areas but also to the learner's emotional, cognitive and social development. If a child can speak, read or write fluently and well, he is able to make friends easily and to learn quickly, he tends to become emotionally secure and to develop confidence in himself. These are the qualities that make for success in life. A child with poor language background remains a poor learner and poorer performer in all areas unless specially helped in language skills. Moreover, without proper development of the ability to use language one finds it difficult to think about anything or discuss any subject or to communicate one's thoughts to other people. Failure to teach language skills properly and adequately in the early years will lead to difficulties in learning subsequently through the upper primary, the secondary and the higher secondary stages.

A second language may be learnt almost as soon as a first language. Human beings can learn as many languages as they like. However, the older we become, generally the more difficult it is for us to learn a language. A child can pick up languages much more quickly than his parents can. What is required is that the child should be made to be interested in the language, to want to learn it and that effective methods should be used in its teaching.

English is the second language we teach in India. It is an important major language of the world because much of what mankind has said, done or thought in the past is available in it. It is the one language children must learn if they are to be good businessmen or good workers. As a tool of communication, it will help them in their relationship with other people and contribute greatly to their own personal success and happiness.

Since the child's ability to learn a language is the greatest when he is young, the earlier a child learns his English, the better. Therefore, the primary school English teacher must know English and must teach it well. If he succeeds in developing child's ability to speak English well within the first two years, the later learning will then be comparatively easy. But, if he does not know enough English himself or teaches badly, he will either destroy the child's interest in the language or he will impart to the child wrong habits, making it difficult for the child to learn later.

Children will learn more readily if they constantly hear and are encouraged to use the language that they are learning. Almost all the time the child should be made to listen carefully to English being spoken, to write in English, to read as much English as possible, and most important of all, to talk to others in English himself

Since a child is not supposed to know any English when he joins school, a teacher may make a judicious use of the mother tongue or the regional language at the initial stages. But, the use is to be reduced gradually until only the target language is used in the class

Objectives of the Unit are:

- ❖ to make the teachers aware of the importance and objectives of teaching English at the primary stage.
- ❖ to acquaint them with different components/competencies of the four skills – listening, speaking, reading and writing
- ❖ to familiarise them with the different transactional strategies that may be used to develop the four skills
- ❖ to make them lay emphasis on aural oral approach in their teaching.
- ❖ to enable them to comprehend and teach different skills of comprehension
- ❖ to help them build up learners' vocabulary through different devices.
- ❖ to help them know the various ways of teaching spelling.
- ❖ to encourage them to teach grammar following situational approach
- ❖ to enable them to use locally available materials for teaching-learning purposes
- ❖ to enrich their understanding.

Objectives of Teaching English at the Primary Stage

The following objectives have been set for the teaching of English at the primary level in the syllabus developed by the NCERT.

To help the child to.

- ❖ develop the abilities of listening, speaking, reading and writing English.
- ❖ communicate in English with appropriateness and with right pronunciation.
- ❖ think independently, to differentiate between fact and opinion and to use language intelligently and creatively (understand emotion/intention behind words)
- ❖ appreciate the melody of the spoken words and to enjoy learning English.

FOUR SKILLS OF LANGUAGE AND THE STRATEGIES FOR THEIR DEVELOPMENT

One cannot be a good reader or writer without being a good listener and speaker. Listening and speaking are the basic skills which later help in the development of reading and writing. Accordingly, oral-aural approach is to be followed at the primary stage with less focus on reading and writing. All the four skills and the other related issues will now be dealt with one by one.

LISTENING

Listening is being able to catch words and phrases that we hear

Cliford N Fyle observes. "Pupils learn by listening to the teacher, by watching him demonstrate and observing what he shows them, by associating the teacher's speech with what the teacher does or says, and by imitation.

The learners learn much by listening to their friends, parents and such means of communication as radio, television and tape recorders. The receptive skill of listening obviously plays an important role in day-to-day communication and in gaining information and ideas. It is an important way of acquiring the language – of picking up structures and vocabulary. We cannot develop speaking skills unless we also develop listening skills; to have successful conversation, students must understand what is said to them. To develop this ability students need plenty of practice in listening to English spoken at normal speed.

How can this basic skill of listening be developed?

TRANSACTIONAL STRATEGIES/ACTIVITIES

Here are some strategies given for the purpose.

1. GREATER USE OF ENGLISH BY THE TEACHER

Teachers need to become more aware that listening has a great importance in learning English. If the teacher uses English as much as possible in the class, students will have greater opportunities to listen to English. A teacher can use English in two ways (i) for teaching the lesson i.e. for introducing a text, presenting language items, giving examples, asking questions etc. Attentive listening to the repetition of sounds of letters and pronunciation of words by the teacher in the classroom is an effective way of teaching these items (ii) for activities surrounding the text i.e. for checking attendance, chatting to students, controlling the class etc.

2. ASKING SIMPLE QUESTIONS

Short and simple questions like the following could be asked What is your name? Where is your friend? Showing a pen the teacher may ask. Is it a pen? Again, showing a book he may ask: is it a notebook? The responses will reveal the pupils' powers of listening comprehension.

3. NARRATING STORIES

The teacher may narrate small and interesting stories to the learners in a dramatic way i.e. with proper actions, gestures and modulation of voice arousing their curiosity The desire to know what will happen next will make them listen with full attention and concentration The stories should be suitable to the age and mental maturity of the learners and should deal with the situations familiar to the children. The sentences used should be short and diction, simple.

Ask brief questions at times while telling the story in order to make sure that the learners are listening with attention and understanding. The questions put to the students should not involve much thinking. Students may be asked to retell the story in order to check their listening comprehension.

4. RECITING POEMS

The teacher should select a poem appropriate for the age level of learners and recite it with appropriate stress, intonation, rhythm and actions The poem has to be repeated two to three times loudly and distinctly. At times the teacher may ask very simple questions about the poem in order to make the learners listen with more attention. This helps in developing listening skills

Children naturally love poetry. They love its rhymes and rhythms; they love verses about animals, and about heroism and adventure, they love little and funny stories inverse; they love nursery rhymes.

The recitation of poems creates interest and lively learning environment in the class. Nursery Rhymes in particular can be used as a device for initial warm up and motivation.

5. SIMPLE COMMANDS

Small children love to obey commands, esp. the ones given by their teachers This fact can be exploited for developing the listening skill. The teacher can issue simple commands like sit down, stand up, open your book, open the window, clean the black board, switch on the light etc Some learners can be invited to the blackboard and asked to draw trees, birds and

flowers in the middle, on the right side or on the left side of the blackboard. All these commands demand physical activity on the part of the children; the teacher should note whether his instructions are being carried out exactly or not in order to test their listening comprehension.

6. LISTENING TO RECORDED MATERIAL

Cassette recorder can also be used for listening activities. It gives a chance to students to listen to a variety of voices apart from the teacher's and it is a way of bringing native speakers' voices into the classroom. Students who have only heard English spoken by their teacher often have difficulty understanding other people.

Children can be given practice in listening to stories, rhymes and poems through tape recorder. Listening sessions may be followed by very simple and literal level questions.

Recorded material is particularly useful for listening to dialogues, interviews, discussions, etc. where there is more than one person speaking. An additional advantage with the cassette recorder is that it can be stopped and replayed when students are not able to 'catch' the words and phrases that they hear.

SPEAKING

Of all the four skills, speaking seems intuitively the most important: people who know a language are referred to as 'speakers' of that language as if speaking included all other skills.

Speaking develops the child's powers of self-expression, and enables him to share ideas, feelings and experiences with others. He can address and greet people of different ages, convey messages, participate in a conversation, discussion or argument, use the telephone, take part in a play and so on.

TRANSACTIONAL STRATEGIES/ACTIVITIES

Classroom activities that develop learners' ability to express themselves through speech are an important component of a language course.

1. PATTERN PRACTICE

The teacher utters a pattern two or three times and then asks learners to repeat it after him. He guides them towards producing the same kind of other sentences as he has made. For instance, the child who has learnt to say

I see a book' can also be made to say, 'I see a chair/a man/a dog/a tree/ a bird, etc or 'I see/have/open/shut (etc) a book'

Pupils are to be encouraged to speak in English within the limits of the sentence patterns that they already know

2. CORRECTING PRONUNCIATION

The children generally make many mistakes of pronunciation while answering questions or speaking on other topics. Their speech is not to be interrupted for the purpose of correction. The teacher should jot down the mistakes committed by a learner and correct them through pronunciation drill when he has finished his say. A teacher should see to it that his pupils speak phonetically correct English using appropriate stress and tone allowing the voice to rise and fall correctly depending on whether one is making a statement, issuing a command or asking a question. He should also see to it that they speak at normal speed without introducing unnecessary pauses. The influence of child's mother tongue on English also needs to be curbed.

3. ASKING QUESTIONS

The learners are asked questions about the experiences they have recently undergone. In case the learners have just returned from a picnic, they may be asked such questions:

Where did you go for the picnic?

How did you go there?

What did you see there?

What did you eat there?

Which games did you play there?

When did you come back?

Learners could also be asked questions on the stories and poems narrated to them in order to make them speak.

Learners too should be encouraged to ask questions freely. For this the classroom atmosphere needs to be fearless and friendly.

4. RECITING POEMS

Once the children have listened to the teacher's recitation of a poem they can recite it in chorus and then groups of children may recite different stanzas or lines followed by recitation by individual learners.

Choral practice is to be done before individual practice as it helps learners get rid of their shyness and instils confidence in them.

The recitation provides an enjoyable experience to the learners and develops in them a sense for rhythm of the language and a feeling for poetry.

5. NARRATING STORIES AND EXPERIENCES

The learners may be asked to narrate simple stories that they may have heard from others or teachers. They can also narrate the personal experiences they have had. The teacher should always be ready for a lapse into the local language when children are eager to relate an experience but do not have enough command of English to do so. However, he should immediately translate the local language version into English.

6. DIALOGUES

Dialogues given in the textbook should be read out in the classroom by assigning different characters to different learners. A dialogue should be conducted as a role-play activity.

7. USING PICTURES

Learners are shown a picture containing total scene and many simple actions. The teacher provides them with model sentences based on the picture. The students see the picture and frame small sentences describing the actions taking place therein. Questions based on the pictures may also be asked.

8. MAKING ANNOUNCEMENTS

Giving learners an opportunity to make announcements concerning school programmes, literary and cultural events, games and sports, N. C. C., lost and found etc. to other school students in the morning assembly or in the classrooms is an effective way of helping them overcome their initial hesitation and develop speaking ability.

9. SPEECH CONTESTS

The learners may be asked to learn prose pieces and poems by heart and then reproduce them from memory before the class in a competition.

Fourth and fifth class students may even be asked to speak freely for a few minutes on an interesting and familiar topic.

This will enable them to shed their hesitation and make them bold enough to face audiences.

10. TELEPHONING

Children are naturally attracted by technical devices and love to use them. Telephoning, therefore, could be an effective way of developing conversational skills. The teachers and parents should provide this facility to the learners as and when possible.

11. FREE EXPRESSION

By the time children reach the fifth standard they have developed enough control of vocabulary and of the basic structures of the language to express themselves for all their ordinary purposes. Greater emphasis should also be laid on free expression including discussion.

12. CONVERSION

Fourth and fifth class students may be divided into groups and given an interesting topic to discuss. They should be encouraged to converse in short and simple sentences.

READING

Reading means getting meaning out of a written text as efficiently as possible. Reading without understanding is a futile activity. It is simply 'a barking at print'. We read in life either for information or pleasure. The skill of reading involves the ability to recognize the shapes of whole sentences, of individual words and individual letters and to know their corresponding sounds; the ability to read aloud and then silently without making use of the organs of speech, the ability of understanding meaning either from the context or by using a dictionary and other works of reference; the ability to understand the significance of punctuation marks and grammatical structures; finally the ability to read speedily through light material and carefully through material meant for detailed study.

TRANSACTIONAL STRATEGIES/ACTIVITIES

The main way in which students learn to read is by reading.

LOUD READING

In loud reading a child reads out every word. As he does so, he has to get the phonemes (the significant sounds of a language), their combinations and the stress and intonation patterns correctly.

For the first four to five months of instruction in English the children should be taught to speak; only later should they be introduced to reading. The reading instruction has to begin with loud reading. The pupils are taught to read from the blackboard before they are allowed to read from their textbook. Much later they are introduced to silent reading. Loud reading is an essential step or a stepping-stone to silent reading. It not only helps them to pronounce words correctly but also to group them into 'meaningful units' (sense groups). Therefore, learners should be given sufficient practice in reading aloud. The following methods or a combination of these methods can be employed in teaching loud reading to beginners.

ALPHABETICAL METHOD

In this method the learner is taught the names of the letters and has to recognize them by these names. For instance A Apple, B Ball, C Cat and so on. Most of the examples are from birds and animals.

When the pupil has acquired his alphabet he is introduced to words. For each he is required to say the letters and then the word. bee, ay, tee ... bat, and so on. By this means he memorizes the words and the spelling.

PHONIC METHOD

In the alphabetical method the letters are given their names but in phonic method they are given their sounds, and the pupil has to blend these into one another to make up the pronunciation of the word. For example, the sounds muh-a-tuh give us mat. In fact the method depends on the knowledge of the word already as no individual letter sounds can build up exactly into the sound of the whole word. Sometimes sounds are taught in combinations occurring either at the beginning or end of words. For example;

‘Ma’- in man map mad mam

‘-at’ in cat bat rat mat

‘-it’ in hit bit sit lit fit

Besides the combinations, children have to learn single letter sounds for the final or the initial letters separately.

Similarly digraphs (units of two letters representing one sound) are taught.

Eg. sh, ch, ng, ck

Sentences using the combinations of letters and digraphs are then introduced.

The cat is fat. It is on the mat

There is a toy ship in the shop

The method is based on the principle of sound-letter relationship. But, in English, spelling of many words does not provide any clue to their pronunciation as we have only 26 letters but 44 sounds. Therefore, all words cannot be taught using this method.

WORD METHOD

In this method words are presented to the class as complete wholes. The children recognize them at a glance without analyzing their letters. The pictures, context and the general shape of words serve as aids to their recognition. Useful verbs, nouns, adjectives and adverbs are taught by means of action games and by labelling objects. Gradually, these words are joined to form simple sentences. Such words and sentences can be presented to the class on word cards.

At the earliest stages of learning to read it is useful to give students practice in recognising words. A simple way to do this is to write words or phrases on pieces of paper or card. The teacher holds up the card and says the words **A table** and asks the class to repeat once. Word cards make the activity flexible, the teacher can show a word and then hide it, or show words in different sequences. The cards are the easiest visual aid to make. They can be kept and used again.

Look and say technique is followed because students look at the word and then say what it is. Saying the word is just a way of checking that they can recognize words.

SENTENCE METHOD

This method starts not with individual words but with simple sentences. These sentences are mostly drawn from children's own experiences of their homes and school life. They are presented in association with pictures on sentence cards, which bring strong clues to the meaning of the words. The teacher reads out the sentences several times in the early stages and the child reads by repeating or remembering what he has heard.

The learners are also asked to match the sentences with the pictures. Later, sentence cards alone are flashed without the accompanying pictures for instant recognition.

Sentences can also be divided into two halves and students can be asked to combine them e.g.

Put your book
Do not sit

on your desk
near the door

It is argued that the sentence method sets words in a meaningful context and provides more interest and a greater variety of subject matter than word whole and phonic methods. It is useful to give students practice in reading and understanding complete sentences even at the earliest stages.

SILENT READING

Most of the reading in actual life outside school is silent reading. Therefore, during the fifth class the teacher should teach children to read silently without moving their lips or moving their heads from side to side and without pointing at words. The pupils should sit straight and have the reading book not further away than about one foot. They should be advised to rest their eyes for a few minutes by looking away from the book after every half hour or so of reading.

SCHOOL LIBRARY

A wide range of children books should be made available to pupils through school or class library and they should be guided to the reading of fiction, poetry, adventure, travel, history, biography, informational material, simple science, nature stories and so on in accordance with their individual interests. A teacher must encourage the child's love of reading and see to it that he develops good reading habits. He should ensure that each child reads twenty books a year or roughly about one a fortnight. A child should also be invited to talk to his classmates and teachers about the books he has read.

MODEL READING

A teacher's reading has great influence on his pupils' reading. It serves as a model for them. Therefore, a teacher himself should be an efficient reader. He should read distinctly with correct pronunciation, stress and intonation, keeping the sense groups in mind and introducing pauses where necessary.

CORRECTIONS

A pupil's reading should never be interrupted for corrections. Mistakes of pronunciation should be jotted down and corrected after the reading is over.

COMPREHENSION

Comprehension is a deliberate and receptive act of mind and involves reading of or listening to a text, and responding to questions and tasks on it. The questions and tasks may pertain to locating the main idea and the supporting details, understanding the sequence of events, recognising relationships between ideas, inferring moods, intention and motives, making judgements and appreciating the beauty and humour of the passage. Children should be trained from class III onwards to find the central thought and to link, reorganize and summarise ideas and, to predict the result of an argument and to form their own opinions.

Poor comprehension is the result of low intelligence, vocabulary deficiency, lack of motivation and concentration, introduction of too difficult concepts in one passage, dominance of long and complex sentences in the text and undesirable physical factors such as fatigue, malnutrition, inadequate lighting, noisy surroundings etc. Over-emphasis on oral reading at later stage also causes poor comprehension. When people only read and don't think, they forget the major function of reading viz. understanding the meaning. A teacher should try to analyse the causes of poor comprehension and take remedial actions. He should also develop children's skill of efficient silent reading.

There are four different levels of comprehension – literal, reorganization, interpretive and inferential and evaluative. Literal comprehension focuses only on information explicitly stated in the passage. At the reorganization level a child is expected to rearrange some of the clearly stated facts. At the interpretative and inferential level a child goes beyond the facts and reads in between and beyond the lines and draws his own inferences. At the evaluative level he makes judgements on the facts contained in the passage and appreciates the beauty of language and ideas.

At the primary stage teachers may remain confined only to literal level upto class III but they must try to go beyond it in classes IV and V.

Questions to be asked for comprehension differ as regards difficulty and complexity. Obviously, only literal and specific questions focusing on an important point or detail should be asked upto third class. Such simple questions can be answered on the basis of reading one or two sentences. Global questions focusing on ideas central to the whole text should dominate the later part of the primary stage. Usually children have to read most of a text to be able to answer a global question.

It goes without saying that there should be variety in the type of questions to be asked. A teacher is expected to frame and ask different types of questions such as yes/no type, true/false type, multiple choice, matching type, completion type, fill-ins, short answer type, long answer type etc.

WRITING

The purpose of writing is the expression of ideas and conveying of messages to the reader. A writer is required to pay some attention to formal aspects: neat handwriting, correct spelling and punctuation, as well as acceptable grammar and careful selection of vocabulary.

Writing is widely used within foreign language courses for practising aspects of language other than writing itself. For example: learners note down new vocabulary, copy out grammar rules, write out answers to reading and listening comprehension questions and do written tests.

TRANSACTIONAL STRATEGIES/ACTIVITIES

- 1 Practice in the drawing of patterns in art lessons and on cardboard, blackboard, paper and so on should be done before beginning handwriting practice in exercise books.

2. All letters are combinations of strokes (horizontal, vertical, circles semicircles and slanting). Initially, therefore, train the children to master these strokes. These prewriting exercises will help improve movement of wrist and fingers in a desired and helpful manner
- 3 Writing with fingertip on sand results in a sensation, and that probably helps in registering the shape of a letter in the mind.
4. It is not necessary to introduce letters in alphabetical order – the alphabet can easily be learnt separately Letters with similar shapes could be taught together. Vowels may be introduced near the beginning. This is useful as they are common and can be joined to other letters to make words. A possible order in which to teach the letters given by Adrian Doff is:

i	l	t	u	v	w	
c	a	o	d	e	b	s
n	m	h	r			
j	y	g	q	p	f	
k	x	z				

The essential steps in teaching a letter for the first time are:

- (i) Draw four lines on the blackboard.
- (ii) Write the letter clearly on the board two or three times.
- (iii) Describe how the letter is formed emphasizing the direction of the strokes. This may be done in simple English or the students' own language.
- (iv) Say the name of the letter
- (v) Students draw the letter in the air
- (vi) Students repeat the name of the letter.
- (vii) Students copy the letter in their books several times along the line.
- (viii) Give some small words beginning with the letter.

5. The teacher should draw the attention of the children to the process of the formation of letters – where they begin, how they proceed and which strokes are used to make them. While they practise, check the formation process.

Letters may be categorized as

- (i) ascenders b d t h k l t
(letters occupying the first three lines of the four line pattern)
- (ii) sitters: a c e m n o y s u v w x z
(Letters occupying the middle two lines of the four line pattern)
- (iii) descenders: g, j, p, q, y
(letters occupying the last three lines of the four line pattern)

Which part of the letter should be confined to the middle column, which should go up and which should come down – these aspects need to be checked meticulously

6. Pupils start with print script and then move on to the joined script called simple cursive. In this style of writing most letters are joined, but they keep the same basic shape as in printing. According to Adrian Doff most children in Britain learn this style, and most adults use it.

7. FEATURES OF WRITING AND OTHER DETAILS

- (i) English writing follows left to right direction.
- (ii) it is written on the line
- (iii) The use of punctuation marks such as period, question mark, capital letters etc. is necessary to avoid confusion and to convey the correct sense
- (iv) Proper margins have to be left.
- (v) Correct sitting posture, proper handling of pen or pencil for light and swift writing need emphasis.
- (vi) Children use pencil for the first two years and begin to use pen and ink in the third year.

8. QUALITIES OF GOOD WRITING

A. W. Frisby mentions the following five qualities of good writing.

- (i) Distinctiveness (each letter should have a characteristic form of its own)
- (ii) Simplicity (the letters should have no unnecessary parts)
- (iii) Spacing (the letters in a word, the words in a line and the lines in a page should not be crowded too closely together)
- (iv) Uniformity (the style adopted should be uniform in size, spacing, alignment and direction of strokes)
- (v) Speed (the writing should not be laboured but done at a reasonable speed)

9. TRANSCRIPTION

Once students have learnt enough letters, they can start writing words and simple sentences. The simplest and most controlled form of practice is simple copying. In it the students do not have to produce words of their own, so the focus is entirely on handwriting.

Simple copying from the board can be a very mechanical activity. It can be made more meaningful and interesting by using a technique called 'delayed copying'. The teacher writes a word on the board (or shows it on a card), and the students read it; then the teacher erases the word, and the

students write it. In this way, students have to think of the word as a whole, not just as a series of letters.

To make students think about what they are copying we can ask them to match questions with their answers and then write them out.

Writing at the lower level helps students to learn. Writing new words and structures helps students to remember them, and as writing is done more slowly and carefully than speaking, written practice helps to focus students' attention on what they are learning

10. DICTATION

While giving dictation, read the text once through and then dictate it phrase by phrase. Then read it through once again.

Dictation is an intensive activity, which makes students concentrate. It helps develop listening as well as writing. The main skill practised is spelling.

An alternative to dictation, which develops both listening and writing skills and focuses on meaning, is for the student to listen to a text and then try to reconstruct it from prompts. It is called Dictocomp (Dictation + Composition). In it the prompts are first written on the board.

Praveen – fishing – friends house – bus – river, tree – fishing – a few minutes – Praveen – small fish.

The text is then read out. Students are asked just to listen carefully and not to write anything.

Praveen decided to spend the day fishing. He went to his friend's house and they took a bus to the river. There they sat down under a tree and began fishing. After a few minutes Praveen caught a small fish.

Now the students are asked to reproduce the piece from memory.

11. REORDERING WORDS

The words in sentences are jumbled up and children are asked to put them in the right order. For example.

- i) we/six o'clock/and/tea/drink/get up/at.
- ii) saw/sitting/old woman/chair/I/in a/an.

12. FILL - INS

After much copying of sentence patterns, children begin to have controlled practice in constructing and writing their own sentences. This begins by filling in gaps in sentences written by the teacher on the blackboard. The teacher may write sentences such as

Ravi is the window

He is hiding under the

This mango is big but that is... .

13. COMPLETION TYPE

Children are given practice in completing sentences with phrases and clauses, as for example:

The boys walked fast because..... .

A lot of people

..... ..where he put the books.

..... ..in my breakfast today.

While completing these sentences the children are not only practising their use of English but they are also learning to be imaginative and creative.

14. QUESTIONS

The teacher asks children a series of questions on a topic and the response to each question given by the them is recorded on the blackboard. At the end, a piece of composition emerges on the blackboard before the class

15. DEVELOPING AN OUTLINE

A topic is discussed in the class. The students make suggestions and the teacher builds up an outline or a list of key expressions on the board. The students use this as a basis for their writing.

16. FREE EXPRESSION

Fourth class onwards exercises on free writing may be introduced. Pupils begin to write a few sentences on their own about their personal experiences or feelings. They are encouraged to write short imaginative compositions in which they express their points of view on particular subjects, for instance a description of what impresses them most about a person/place/institution/object.

17. LETTER WRITING

Letter form could be taught to children in class IV. Let pupils write notes and friendly letters called for by actual situations e.g. a letter to a pen friend, an invitation to a party or to a school activity. Tone and intimacy of the letter should also be stressed. Formal letters can be introduced in fifth

year e.g. an invitation to an outside speaker to address the class, a letter to a museum director asking for permission for a class visit, a letter to the sports master of another school to arrange for a football match.

18 However, small children will make many mistakes and teachers must be careful to praise their efforts and not discourage them by being too critical of their failures

SPELLINGS

In English the relationship between sound and spelling is very complex. The letter 's' represents different sounds in the words 'sing', 'his', 'sugar' and no sound at all in 'isle' and 'aisle'. The sound ee (seen, speech, reed) may also be written as i.e., (believe, achieve) ei (receive, deceive) eo (people), i(machine), e (scene)

There are other peculiarities, as for example the retention of a symbol for a sound that does not exist: 'k' in know 'b' in comb, dumb, 'w' in sword, 'h' in hour, honour 'l' in calm, half, 'gh' in daughter.

These and some other features of the language create difficulties for children. Still the children need not be told about the various spelling rules. They will gradually become aware of them as they read. Some strategies to teach spellings are given below.

TRANSACTIONAL STRATEGIES/ACTIVITIES

1. FLASH CARDS

Cards with spellings of words occurring in the lessons are flashed to the children one by one in the classroom. And then they are asked to write them down.

2. PHONIC CARDS

The cards containing alphabets are kept on the table. The teacher utters a word and calls a student. He comes and collects the relevant alphabet cards, forms the word and places the cards on the flannel board.

3. PICTURE CARDS

The teacher shows the picture and pupils have to choose the word related to it from the cards lying on the table.

4. FILL - INS

the teacher takes up a word and drops some of its letters leaving the first and the last letter undisturbed. For instance: s—a—e (scale).

5. JUMBLED WORDS

The teacher takes up a word and jumbles up its letters. The first letter can be left undisturbed for beginners. For instance nesru (nurse).

6. OBSERVATION GAME .

About ten words are written on the blackboard and the children are given one or two minutes to observe and read out words. Then they are rubbed off and the children are asked to write them down in their notebooks looking at the blank blackboard.

In the same way a teacher can keep ten articles on the table and ask students to observe them for two minutes. The children are then asked to write down the names of the articles without looking at them.

7. BUILDING NEW WORDS

The children are given a word, say, 'teacher' and are asked to frame as many meaningful words as possible from the letters contained in that word.

8. MULTIPLE CHOICES

Four or five words are given as possible choices. One of the words is mis-spelt. Children have to identify it.

9. DICTATION

Although the sole aim of dictation is not spelling teaching, yet it can prove useful therein. It fixes the spellings of words firmly in the mind.

The teacher should see to it that all words written by children are correctly spelt. He should encourage them in the habit of asking when they do not know the spelling of a word they want to use. Words and phrases where mistakes occur frequently should be drilled.

VOCABULARY

A language is made of words. To develop command over a language one will have to master the words of that language. Without this command communication very often breaks down. It is expected that by the time children reach 5th standard they will have built up a vocabulary of eleven hundred words. Obviously, teachers are expected to pay special attention to building up of children's vocabulary. Telling the meaning straightaway in the mother tongue is not advisable as the children cannot see how the word is used in an English sentence. This device should be used only as a last resort. Once the word has been explained through other devices the teacher can ask the students to translate the word into their mother tongue in order to check their understanding.

TRANSACTIONAL STRATEGIES/ACTIVITIES

Here are some strategies suggested for teaching vocabulary items

1. BY SHOWING REAL OBJECTS

The words like 'watch', 'window' and 'elbow' can be explained most easily by showing these objects.

Tr: Look . this is a watch A watch A watch

Ss A watch

T What is it?

Ss A watch

There are several objects available in the classroom, there are many more carried by children with them, and still many more can be brought by the teacher in the classroom. All these objects should be exploited by the teacher to show their meanings.

2. BY SHOWING A MODEL

In case real objects are not available, the teacher can use their models, which may be made of clay, plastic, wood, metal etc. Clay models of fruits and vegetables are easily available in the market.

3. BY SHOWING A PICTURE

The words like tractor, tree, cow etc. can be explained by showing pictures which give the feel of real objects. The pictures can be drawn either on the blackboard or prepared before the lesson on charts etc. They can also be cut from the old issues of magazines and journals and used in classrooms.

Pictures need not be very artistic. Match-stick drawing on the blackboard will serve the purpose.

4. BY MIMING, USING ACTIONS AND FACIAL EXPRESSIONS

These are effective methods of showing meaning of certain words. Action verbs like eat, drink, laugh, smile, move, swim, sleep, pull, push, shake hands, comb hair, wash face, drive a car etc. and certain adverbs like slowly, quickly etc. and verbs indicating emotions like fear, pain joy etc. can be easily, quickly and clearly explained by using these devices. For example, the word 'sneeze' can be explained this way.

Teacher: Look – (mimes someone sneezing) Atchoo! I've just sneezed.

Sneeze, sneeze Can you say it?

Ss Sneeze

Tr again

Ss. Sneeze

5. BY GIVING EXAMPLES

Another way to show what words mean is by giving examples, using the word in context. The word 'look' can be explained thus:

He looked at his watch. I looked at her face. She looked at the sky. They looked at the peacock. We looked at the new teacher.

See, how simple sentences help in showing the meaning of the abstract word, 'lazy'

Some people work hard. Other people don't work hard. They are lazy. I have a lazy brother. He gets up late and then does nothing all day. I say to him, 'Don't be so lazy! Do some work!'

6. SIMPLE COMMANDS

Since children gladly obey commands issued by their teachers, we can use this fact to show meanings of some words. Suppose the word 'touch' is to be explained. The teacher demonstrates its use. Touching the blackboard he says, 'I have touched the blackboard'. Similarly, 'I have touched the table'. Now he says to children. Touch your head with both your hands. Touch your bag with your right hand. Touch your right knee with you left hand. Go and touch the wall.

7. SIMPLE DEFINITIONS

The words used in definitions should be better known than the words being defined. The word 'parent' can be defined in the following way:

A parent is one's father or mother.

8. OPPOSITES

When one of the pair of opposites is known, the other can be made clear through it. In the sentence 'The bottle is empty' the word 'empty' can be explained as the opposite of 'full'.

9. SYNONYMS

A synonym may be used for a new word if it is better known than the word being taught. For instance, the word 'reply' can be explained as the opposite of 'answer' and 'discover' of 'find'.

10. BY CREATING SITUATIONS

It is a very useful device for a resourceful teacher. Good situations show meanings clearly and easily. For instance the word 'mix' can be explained thus.

The teacher takes a glass of water and some salt. He puts salt into water and says 'I mix them'.

11. BY TAKING CHILDREN OUT

Short visits to places such as station, market and bus stand may be undertaken to allow students to have direct experience of things and acquire new words

During the later part of the primary stage, children should also be introduced to children's dictionaries. They should be taught how to use them so that dictionary consultation becomes a habit with them and gradually leads to their self-reliance in learning.

GRAMMAR

A simple working definition of Grammar for the beginners is 'the way words are put together to make correct sentences'. Thus, in English 'I am a teacher' is grammatical, 'I a teacher' and 'I are a teacher' are not. A specific instance of grammar is usually called a structure or language item. Strategies for teaching grammatical items are given below.

TRANSACTIONAL STRATEGIES/ACTIVITIES

An effective way of presenting language items is to show their meanings by creating different situations using things the students can see: objects, the classroom, teacher, students, pictures etc. When it is not possible to show the meaning of a structure visually using what is in the class, it is advisable to think of a situation from outside the class in which the structure could naturally be used. Thus the situation can be real or imaginary.

GUIDELINES

1. Presentation of the language item should be both oral and written.
2. Plenty of contextualised examples using the structure are to be presented to the learners to enable them to understand them.
3. There is no need to give grammatical terminology to children
4. The structure is to be explained mainly in the target language. The child's mother tongue may be used when absolutely necessary.
5. A brief explanation showing the meaning of the structure can be given.
6. It is always better to elicit the generalization from the learners on the basis of the examples given to them

EXAMPLE

Language Item Demonstratives

Step I: This – that

The teacher will hold a flower in his hand and say: 'This is a flower'. Pointing to a book lying on the table near him he will say, 'This is a book'

Now the teacher will put the flower at some distance and say, 'That is flower'. Pointing to a bag lying on a student desk away from him, he will say, 'That is a bag'.

The teacher should bring home to the students the difference between 'this' and 'that'. 'This' is used for objects near the speaker and 'that' for objects away from the speaker.

Step II: These – those

The teacher will hold three or four pencils in his hand and say, 'These are pencils. He will put these pencils on the table and walk away to a distance and say pointing towards them 'Those are pencils'.

The teacher will display a chart showing pictures of several girls and touching it will say, 'These are girls'. He will now move away from the chart and say 'Those are girls'.

Step III

Likewise, sufficient practice in the use of 'this-that' 'these-those' should be given to the learners involving them in different situations using different objects.

Step IV

The sentences used in step I and II should be written on the blackboard at that very time and the children should be asked to copy them down in their notebooks.

ANOTHER EXAMPLE

Language function: Taking about oneself.

Teaching aids: Teacher and students

Step I

The teacher tells the learners about himself. My name is Anand Prakash Rastogi. I am a teacher. I am tall. I am thirty-six years old. My wife's name is Teena. I have two sons and one daughter. I love my family.

Step II

The teacher will now ask the learners one by one to tell about themselves likewise. For example, probable sentences could be.

My name is Ravi. I am a student. I am thin. I am nine years old. I have one brother and one sister. My parents are teachers.

The teacher will try to involve as many students as possible.

SUGGESTED READING

1. Clifford N Fyle (1975) Beginning English with Younger Children, Evans Brothers Limited, London
2. Adrian Doff (1995) Teach English: A Training Course for Teachers, Cambridge University Press

MY BODY PARTS

(CLASS – III)

DR. ANIMESH K. MOHAPATRA

Overview of the Lesson

The children have by now become familiar with the names of many parts of their body. They have learnt that all living things grow – a new born baby grows up to become a little boy or girl, then become a young man or woman and gradually become an old man or woman

Objectives

In this lesson the children will learn about various external parts of the body. They will learn to classify them as sense organs and other organs, and how these external organs carry out specific functions. They will also come to know what will happen if the sense organs stop functioning.

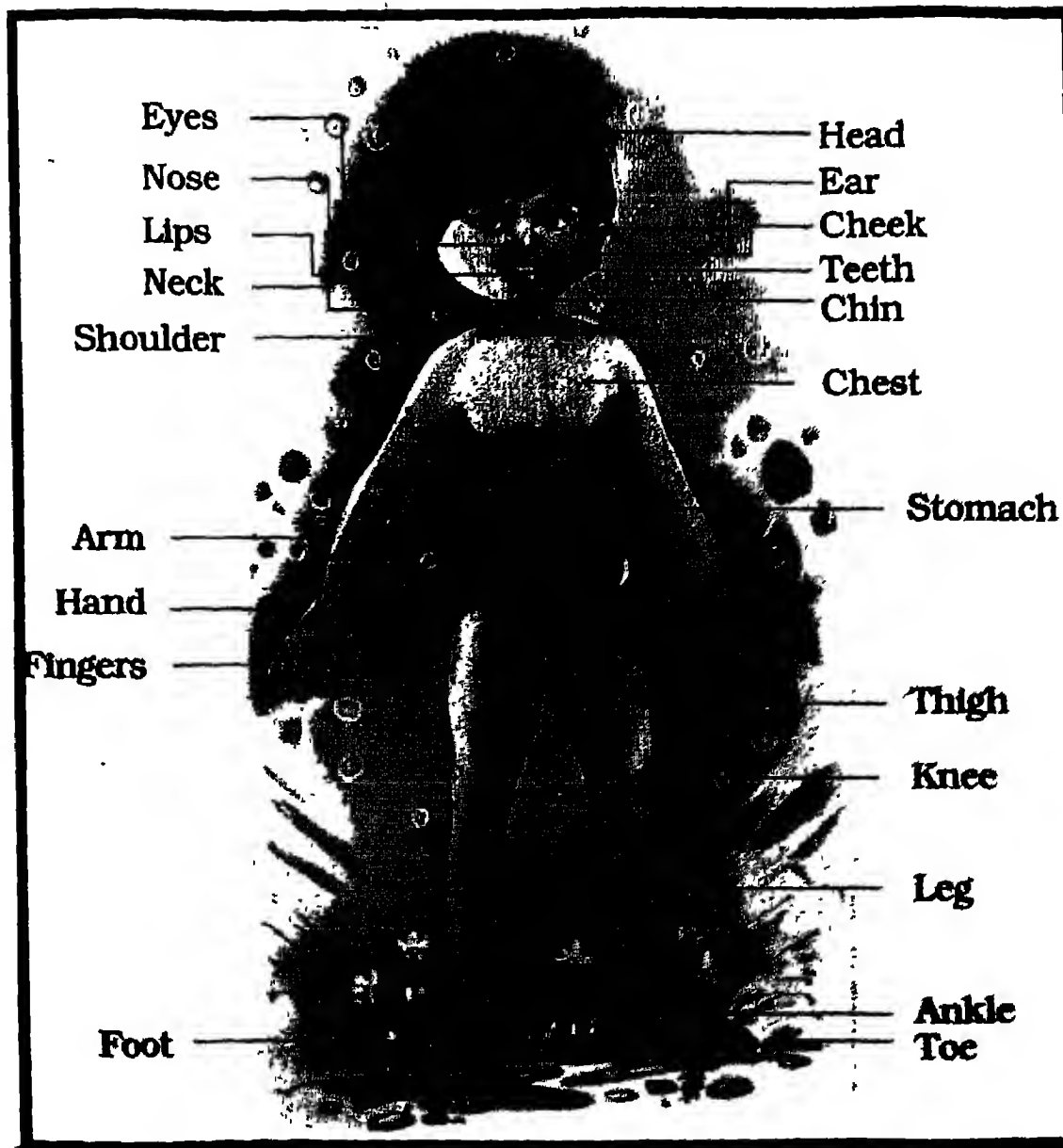
Plan for achieving learning objectives

- Step 1. Ask the Children, which is the topmost part of your body.

- Step 2. Ask one child to stand in front of the class and ask the children, what are various organs/parts present in head, Write their names.

- Step 3 Can you tell, which part of your head helps you to see and recognize things, see various plants and animals, helps you to see TV and when you cry sheds tear.

Parts of My Body



- Step 4 Help children to recall the functions of eyes and tell them we become blind when eyes do not function
- Step 5 Ask the Children, which part of your head helps you to listen music and hear voices of your parents and friends
- Step 6 Help children to recall the functions of ears and tell them we become deaf when ears do not function
- Step 7 Ask the Children, which part of your head helps you to smell different things and also helps you to take air inside and leave out side
- Step 8 Help students to recall the functions of nose
- Step 9 Ask the Children, what is present below your nose through which you eat and helps you to speak
- Step 10 Tell Children that we have teeth inside mouth for grinding food and a tongue which helps us to taste different things.
- Step 11. Can you tell children, what is that part called which covers your entire body, helps you to feel things like hot or cold and smooth or rough
- Step 12 Help students to recall the functions of the skin which is covered with hairs
- Step 13 Now help children to recall different parts present in head and their functions My dear children, Do you know – eyes, ears, nose, tongue and skin are called sense organs

MY BODY PARTS

(CLASS - III)

DR. ANIMESH K. MOHAPATRA

Some functions of leg

Overview of the Lesson

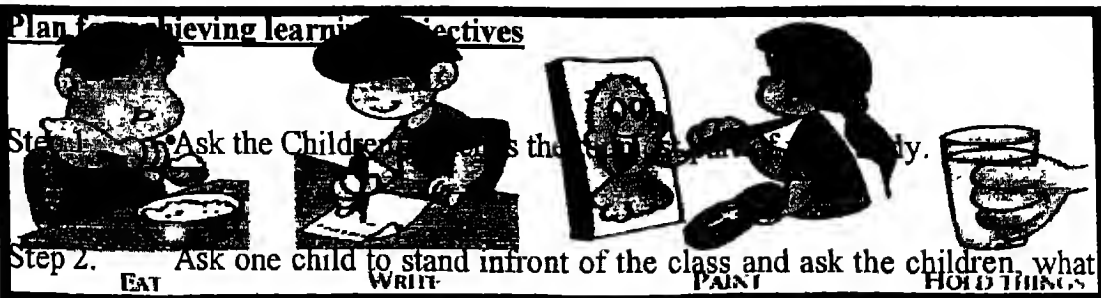


Objectives

In this lesson the children will learn about various external parts of the body. They will learn to classify them as sense organs and other organs, and how these external organs carry out specific functions. They will also come to know what will happen if the sense organs stop functioning.

Some functions of hand

Plan for achieving learning objectives



Step 3 Can you tell, which part of your head helps you to see and recognize things, see various plants and animals, helps you to see TV and when you cry sheds tear

am

- Step 14 Now we will study other parts of our body
- Step 15. Ask the children, which part connects your head with body and helps you to move your head in different direction
- Step 16 Ask the children, which parts of your body helps you to clap, write, draw, throw and hold things
- Step 17 After getting the correct answer again ask children, what else can you do with the help of hands.
- Step 18 Ask the children, which part of your body helps you to walk, run, stand, play and dance
- Step 19 After getting answer again ask children what else can you do with the help of legs.
- Step 20 Ask them to open and read the book. While they are reading, hang a picture chart of the human body Show them which part is shoulder, chest and belly.
- Step 21 Now ask children to point out different parts in their own body and their functions again and again, ensuring that they have understood the lesson thoroughly
- Step 22 Evaluation – Ask the children to answer the questions in their home work book

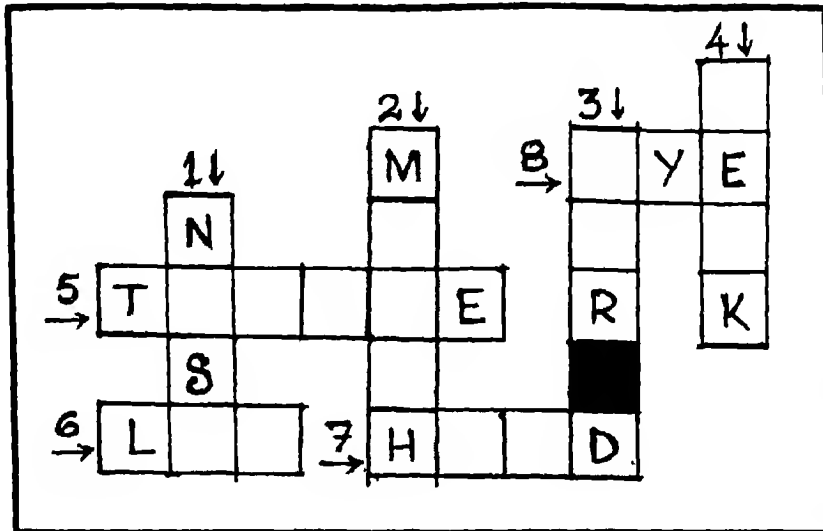
PARTS OF OUR BODY

What We Have Learnt

I Answer the following riddles.

- a I am smaller in size I am having two large openings I help you to take air inside and leave out side. Can you tell who I am ?
- b. I am long and two in number. I can move in all direction. I help you to hold things, eat, write and clap. Can you tell who I am ?
- c. I am two in number. I am present one on each side I am flat having a dark cave in the middle. I help you to hear music and stories. Can you tell who I am ?
- d. I am longest part of your body. I am two in number I am having three parts - thigh, shank and foot. I help you to go away from your angry mother. Can you tell who I am ?
- e. I am a large opening but becomes still larger when food is infront of me. I am having number of hard whitish sharp structures inside. Can you tell who I am ?
- f. I am whitish in colour having a rounded black disc in the middle. I move in all direction inside a groove. I allow only light to enter through me. I close myself with two covers when I feel sleepy. Can you tell who I am ?

*Complete the crossword
with the help of the clues*



Down clues

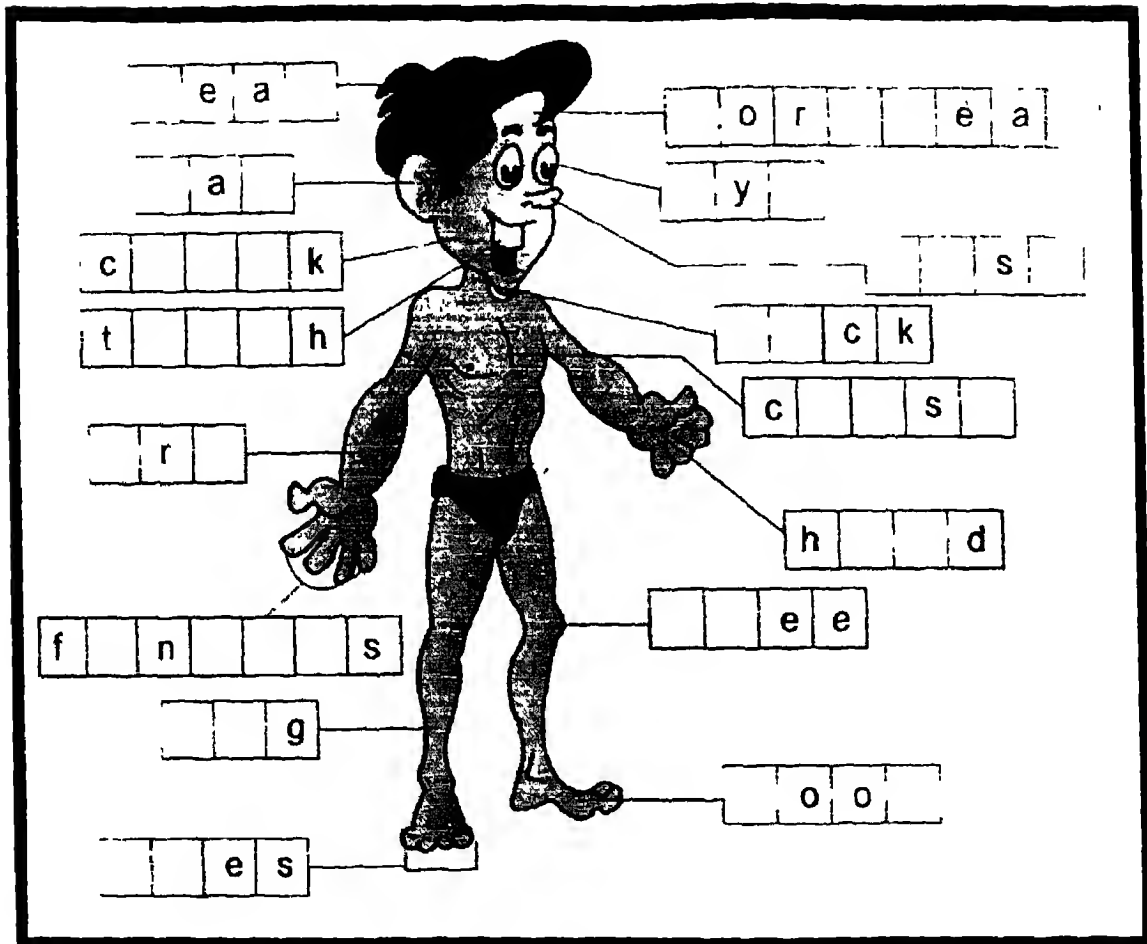
1. We smell with it.
2. We eat with it.
3. We listen with it.
4. It connects head with the body.

Across clues

5. We taste food with it.
6. We walk with it.
7. We clap with it.
8. We distinguish colour with them

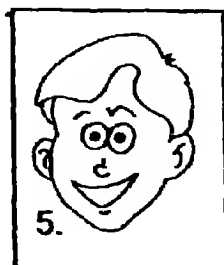
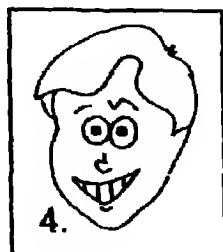
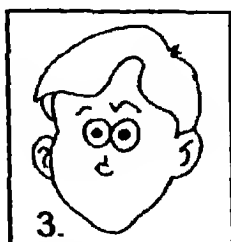
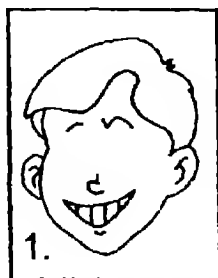
am

Study the picture and fill in the missing letters to complete the names of external body parts



am

What is missing



am

IV Pick the right answer

(i) We see with our

- (a) eyes
- (b) ears
- (c) nose
- (d) skin

(ii) We walk with our

- (a) hands
- (b) chest
- (c) head
- (d) legs

(iii) We speak with the help of our

- (a) nose
- (b) mouth
- (c) eye
- (d) ears

(iv) We taste with our

- (a) skin
- (b) nose
- (c) tongue
- (d) hand

(v) Eyes, ears, nose and mouth are present on

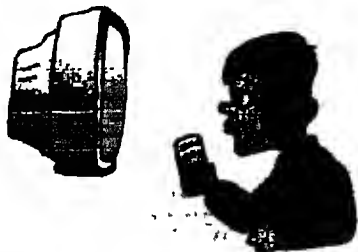
- (a) chest
- (b) shoulder
- (c) head
- (d) belly



Sandy is listening
to music with her



Pondy is smelling
the flower with
his _____.



Pondy is watching
television with his



Pondy is kicking
the ball with his



Sandy is putting
on the bag on her

Find Out

OUR INTERNAL ORGANS

(CLASS IV)

DR. ANIMESH K. MOHAPATRA

Overview of the lesson

The children have by now become familiar with the external body parts which they can see. They have learnt how these organs help them in their activities and how we should take care of them. Children will be now exposed to internal organs of the body.

Objectives

In this lesson the children will learn about internal organs i.e. organs which they can not see, found inside body. They will learn about the functions of these organs and their importance in the body.

Plan for achieving learning objectives:

- Step 1 Ask the Children, when they are hungry, in which part of the body they feel hunger, if they over eat where do they feel pain, the air which you take inside where it goes and from where urine comes

- Step 2 Now inform children that inside our body there are number of organs called internal organs. They help us to perform these activities

- Step 3 Hang a picture chart or show a model of human body showing various internal organs. Now show children stomach, intestine, liver, heart wind pipe lungs, kidneys and brain

- Step 4. Ask the children again and again to point out various internal organs and their location whether present inside head, chest or abdomen
- Step 5 Explain children about stomach, intestine and liver, their location, shapes and functions Also explain them what happens to digested food
- Step 6 Ask the children, what will happen if we eat uncovered or stale food Help children to understand the importance of washing hands and legs before taking food and cleaning mouth properly after taking food
- Step 7 Help children to recall what they have learnt
- Step 8. Call a student to the front of the class and ask him/her to take more air inside and leave outside Show others how chest is expanding and reducing Tell children – this is called breathing

Activity : Ask the children to count how many times they breathe in one minute. Ask them to count how many times their parents and grandparents breathe in one minute after going home

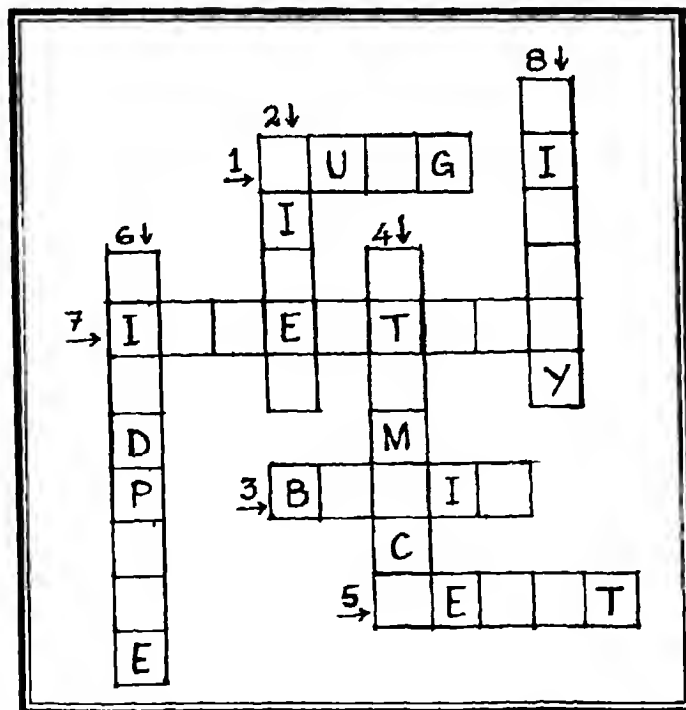
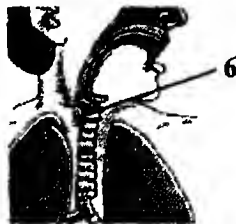
- Step 9 Ask the Children to locate nose, wind pipe and lungs in the picture chart/model Explain them about the functions of these organs
- Step 10 Ask the children, what is that small swelling present at the upper end of wind pipe Explain them that larynx produces sound when we push out air while breathing

- Step 11. Help children to recall what they have learnt
- Step 12 Activity . Call a student to the front of the class Put the diaphragm of the stethoscope on the chest of the child and allow her to hear the dhak-dhak sound. One by one ask all children to come and hear the sound
- Ask the children, do you know what is this sound This is the sound of beating of our internal organ, the Heart
- Activity : Ask the children to keep their hand on chest and count how many times it beats in one minute. Ask them to hop for some time and again count the number of heart beats per minute
- Step 13. Ask the children to locate kidneys and urinary bladder. Explain them the location, shape and functions of these internal organs.
- Step 14. Ask comprehension questions orally to check whether they have understood what they have learnt Along with the questions, have a spelling drill to ensure that they know the correct spellings of new and difficult words.
- Step 15. Evaluation
- Step 16 Ask the children to answer the questions in their home work book

INTERNAL ORGANS

What we have learnt

I. Study the pictures and fill in the missing letters to complete the names of the internal organs



am

III Tick the correct answer -

(a) Which internal organ helps us to remove waste products from the blood ?

- (i) Heart
- (ii) Stomach
- (iii) Kidneys
- (iv) Brain

(b) Name the internal organ which controls all activities of our body?

- (i) Intestine
- (ii) Wind pipe
- (iii) Liver
- (iv) Brain

(c) How many times our heart beat in one minute?

- (i) 30 times
- (ii) 72 times
- (iii) 100 times
- (iv) 15 times

(d) Which internal organ stores food and also helps in digestion?

- (i) Stomach
- (ii) Kidneys
- (iii) Lungs
- (iv) Wind pipe

(e) Which internal organ helps in absorption of oxygen from air to blood and release of carbon dioxide from blood to air?

- (i) Heart
- (ii) Lungs
- (iii) Intestine
- (iv) Brain

FOOD AND ITS COMPOSITION

SPECIFIC OBJECTIVES

By the end of the section will you will be able to

- appreciate that balanced food makes the body healthy and strong
- Develop familiarity with carbohydrates and fats, which are energy food
- Recall that food which builds or repairs the body, is rich in protein
- Explain the nutrient value of protein
- Develop familiarity with different minerals and their sources
- Recall that water acts as a solvent for all food for digestion

SUB CONCEPT

- Compounds, which a living organism cannot make from food, are called essential nutrients
- Carbohydrates and fats are the energy foods whereas proteins are body building food
- Vitamins and minerals are protective food
- Water helps to carry food material to the cell and takes away waste from the cell

MATERIAL REQUIRED

Picture, poster, play-cards, snake-ladder game, charts

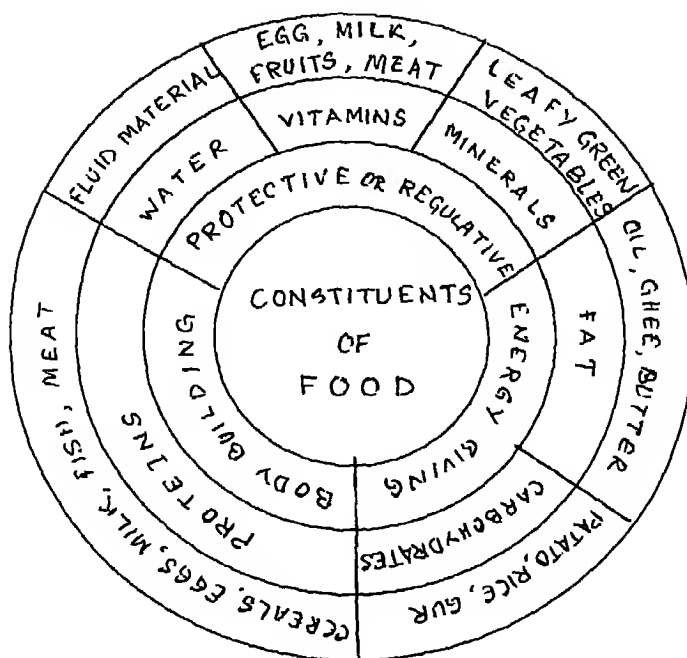
TEACHING LEARNING ACTIVITY

ACTIVITY-1

Involve pupils to list out a large number of food items on the blackboard and try to classify them in groups with the help of the pupils. Ask the students to group them into various groups such as –

- (i) fruits, vegetables and meat
- (ii) Plant food, animal food etc

Explain food constituents in more scientific way by making use of chart



Carbohydrates and Fats	-	Energy food
Proteins	-	Body building
Vitamins and Minerals	-	Protective food
Water	-	Solvent for food for digestion and assimilation

Explain the importance of water although it is not a nutrient. You can use the list of food items or arrange the play card of the food items and explain that, most of food items which we take, may contain one or more of the above nutrients e.g. milk, fish, meat, butter, cereals etc.

ACTIVITY 2

Ask the students to classify food items according to their nutritive value

Advise pupils to bring samples of a large number of food items

(If the food items are not available make use of pictures or flash cards)

Form different groups of students. Help them to group the items with the help of play – cards/picture cards according to their nutritive values

The list below can be used in the form of chart or picture

Carbohydrates -	rice, wheat, cereals, potatoes, water chest-nut
Fats- -	coconut and other edible oils, butter, ghee
Proteins -	cheese, milk, eggs, mutton fish, soya-beans, green-grams, ground-nuts
Minerals -	milk and milk products, liver, egg, fish, green leaves, fruits, soya-beans, cereals
Vitamins -	Fish, liver, liver oil, carrots, fresh fruit, green leaves, green gram, cheese

DISCUSSION

Ask questions like –

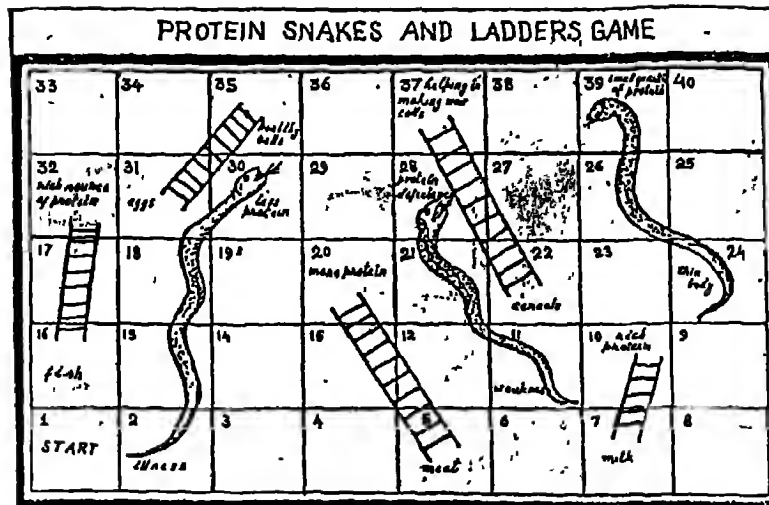
- what factors should be considered while preparing the meal which provide all essential nutrients
- Can we take large quantity of one type or small quantity of different types of foods?
- Should each meal include different types of nutritive foods?

At the end of discussion help the students to conclude that –

- Meal should be selected in such a way so as to include different amounts of each type of nutrient.
- A meal which contains various nutrients in sufficient quantity is called normal meal

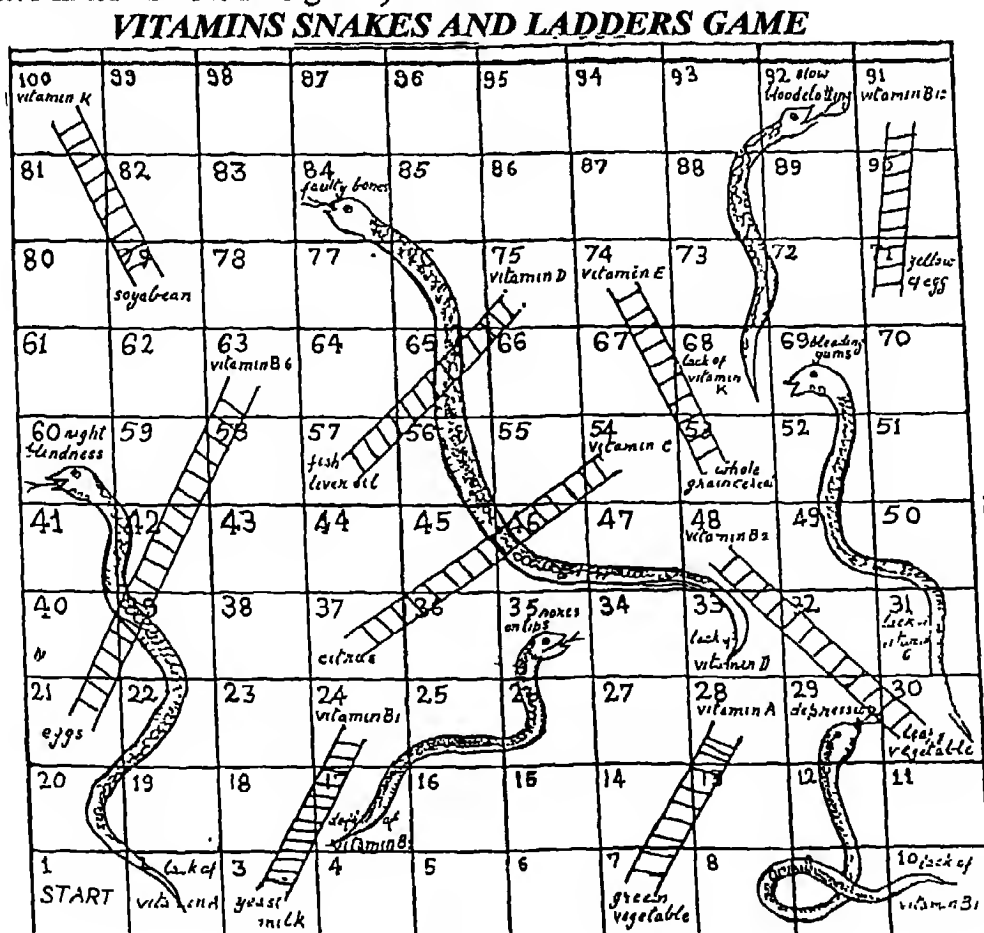
ACTIVITY 3

Explain about the body building food (proteins) with the help of protein snake and ladder game



Recall the game of snake and ladder commonly played and explain the method to pupils to use the game provided, to enhance learning (Instructions attached to the game) After playing the game and through discussion, the pupils will be able to understand that proteins help the body cells in making protoplasm and new cells.

ACTIVITY 4 Explain with the help of 'vitamin-snakes and ladder game', that vitamins provide resistance to the body against diseases. (Vitamin snakes and ladders game).



After playing the game ask questions such as –

- what will happen if vitamin C is not available to us for long? Etc.

sum up the discussion emphasizing the fact that vitamins provide resistance to diseases and help in healing wounds.

**SUGGESTED
SKILLS
AND VALUES**

ACTIVITY	SKILLS	VALUES
1	-To collect -to observe	encouraging independent think -ing co-operation with peer group, relating their personal experiment to the concept formation
2	-to observe -to classify	encouraging learning through game playing, healthy competition, critical thinking.
3	-to observe -to compare -to classify -to infer	co-operative thinking, developing confidence
4.	-to classify -to infer -to make Decision -to test hypothesis	co-operative efforts independent thinking, openmindedness

SELF CHECK QUESTIONS

Ask questions like –

1. Name the carbohydrates and fats which provide energy.
2. List the vitamins, their sources and the diseases caused by their deficiency.
3. Why does the body need water?
4. What are the functions of food in the body?

FOOD ADULTERATION

SPECIFIC OBJECTIVES

At the end of this section you will be able to.

- explain adulteration of food
- appreciate the problem of adulteration and its harmful effects on the health of the people
- analyse the food samples using simple techniques to detect adulteration.
- realise that adulteration can be controlled by creating awareness among the people.

SUB CONCEPT

- common food materials are adulterated with a variety of cheaper and harmful substances.
- Adulteration can be easily detected with the help of a few simple techniques
- Food adulteration can result in serious illness.
- It is an antisocial activity which must be prevented

MATERIAL REQUIRED

Food samples, pigeon pea dal, gram dal, hydrochloric acid, iodine solution, test-tubes etc.

SUGGESTED TEACHING/LEARNING ACTIVITIES

Advise the students to fetch at least one sample of a chosen food item from their home/market/hostel particularly milk, milk cake, pulses, masala (spices) like turmeric red chilli, kali mirch (black pepper), sweets etc.

Perform simple experiments to demonstrate adulteration in these samples.

ACTIVITY

Show the children lathyrus-dal. Advise them to separate it out from pigeon pea and gram dal. Lathyrus grains are triangular in shape, grayish in colour and with dark spots. Dal without husk is yellow.

Ask them to calculate the percentage of lathyrus dal

Discuss that lathyrus dal is harmful. It damages nerves and causes paralysis.

ACTIVITY 2

Help the students to test

(a) Chilli powder

Mix red chilli powder with water in a glass. Advise pupils to observe if colour and husk etc. are mixed to the chilli powder, then water becomes coloured. Dirt sinks to the bottom.

(b) Coriander powder

Add coriander powder to water. Transfer extract to a test tube. When you add iodine solution, adulterated sample turns blue.

(c) Turmeric powder

add a pinch of turmeric powder to a glass of water. Add a few drops of concentrated hydrochloric acid.

Ask pupils to observe change in colour. If red colour develops, it suggests adulteration.

DISCUSSION Discuss harmful effect of adulteration.

Explain that spices, purchased from the market, generally contain harmful colours and dirt. Emphasise that colours used to adulterate red chilli, turmeric, coriander may cause cancer.

ACTIVITY: Help the students to analyse the sample of black pepper. Advise pupils to observe the colour, shape etc. they may not find any difference. Ask them to fill a glass with water. Add some black pepper and ask the students to observe.

DISCUSSION: Why do some pepper sink and others float on the surface?

Ask the students to taste the two types-floating and those at bottom

Why are those at the bottom pungent and taste like black pepper?

(Conclude that dry papaya seeds are added to black pepper).

ACTIVITY 4 Help the students to test coloured sweets. Crush and dissolve some coloured sweets in water. Transfer the extract to a test tube. Add diluted hydrochloric acid. A violet-red colour shows presence of artificial colour in the sweets

DISCUSSION Why are coloured sweets harmful?

(Emphasise that artificial colour added to the sweet, may cause cancer).

ACTIVITY 5 Help the students to test milk, milk cake, ice cream etc. popular with the children. Dissolve a sample in water. Transfer extract to a glass/test tube. Add 1' or 2 drops of iodine solution, Violet colour shows presence of starch (arrow root, wheat – flour etc)

DISCUSSION Explain evils of drinking alcohol. If it is adulterated with methyl alcohol, it may cause blindness, death etc. Narrate a few incidents from news papers. Ask the students to collect such news items and put such information on bulletin boards

ACTIVITY 6 Narrate an exciting story. Children go for a picnic. Food stuff is purchased from a grocery store – Food poisoning causes death – Child belongs to the owner of the store who adulterated spices.

DISCUSSION Discuss various measures to curb adulteration by

- testing the material purchased from market.
- Purchasing standard material from a reputed dealer
- Boycotting adulterators and so on.

**EXPECTED
SKILLS AND
VALUES**

By using this material you shall be developing

ACTIVITY

SKILLS

VALUES

1 to 5

-to observe
-to estimate
-to infer

To appreciate the
problem of adulteration
and its harmful effects
on people

6

-to relate
-to hypothesize
-to infer

SELF CHECK QUESTIONS

1. What do you mean by adulteration?
2. Why do people adulterate food stuff?
3. How does adulteration affect our health?
4. Why is adulteration called an antisocial activity?
5. What steps will you suggest to remove this problem?

TEACHING – LEARNING STRATEGIES FOR EFFECTIVE TEACHING OF ENVIRONMENTAL STUDIES

INTRODUCTION

Teaching is not just an act of transmitting information to students or telling students what or how to learn. Such an approach seldom results in learning. The act of teaching is always a dynamic interaction of teachers and learners. Effective teaching attracts attention of students, directs flow of information, provides manipulability situation and enthuses students to involve actively in the learning process by connecting various information and developing the essential competencies. It should provide conditions to students to act on the materials to be learned.

The competency based approach based on MLL framework, the recent initiative in curricula transaction, essentially demands learner centered interactive mode of classroom transactions. Obviously, teachers need to update their competencies to provide manipulability tasks or situations to ensure learners involvement in learning.

Evidences from psychology demonstrate that active involvement of the learner is an essential condition for learning. In all the experimental situations, the organism whether it is cat or rat or chimpanzee has to perform the desired activities to reach the goal or to find the solutions. The activities and the directions provided by the psychologists are also equally important in ensuring the involvement of the organism in finding the solution. What does this mean? What or how a teacher does in a classroom has implications for the involvement of learners in learning.

The nature and level of involvement in learning depends on the type and level of activity provided by the teacher. Activities will differ depending on the nature and the level of the competencies that are to be attained.

Activities need to be essentially child centered and the basic conditions are :

- manipulability
- ensure involvement of all learners
- meet learner needs
- provide situations to attain competencies
- promote individual and group learning
- promote thinking process

In this module you will be reading a set of strategies for building and expanding vocabulary, understanding concepts and their relationship, making inferences, reading, writing and developing thinking process in the area of EVS – Social Studies at primary level.

The approach adopted is to provide you a set of interactive strategies based on child centered approach which can be used by a teacher without much equipments or material support. Certainly, a teacher has to use his or her insightful thinking to translate the ideas given in a lesson into action so that learners will be able to actively involve and learn. Each strategy has been explained in terms of what, why and how including illustrations based on social science content at primary level specifying the competency.

Teaching of Mathematics at Primary Level

Dr.(Mrs) Shashi Prabha

Lecturer

RIE, Ajmer

The pupils at primary stage are inquisitive and curious to know the things around them. They ask questions about the how & why of things and events that occur in their environment. They are fond of playing and always keen to do something. This is period of rapid growth, they possess energy and are always restless. They like to spend more time with friends and take special interest in nature. They take pleasure in constructing things with simple tools and ordinary materials. They have a fascination for stories, fairy tales and life stories. They are imaginative. Brightness, sound, colour, animal or other natural phenomena immediately attract their attention. Maths teacher should take advantage of these natural abilities of the pupils and provide them with suitable experiences through doing something. Care must be taken to teach simple concepts of maths, because once a concept is wrongly conceived, it is very difficult to correct it at a later stage. It cannot be expected that pupils at this stage will be able to understand the abstract ideas of Mathematics and its various applications. Teaching has always involved the communication of ideas through the senses, either orally through the medium of speech or visually by the use of written or printed material. Mathematics is essentially a subject of reasoning and it can be defined as the science of numbers and art of computing with those numbers. The Teaching of Mathematics is based on acquiring knowledge and understanding of terms, symbols, concepts, definitions, process, principles and facts.

Teaching of Mathematics at primary level aims at providing the child with the basic mathematical concepts and skills needed to tackle real life problem. Other aims are -

- (i) To prepare the students for purposeful, economic, productive, creative and constructive life.
- (ii) To develop the skill of qualification of the environmental experiences.
- (iii) To provide a suitable type of discipline to the mind of the learners.
- (iv) To prepare them for elementary level as well as higher education in science, economics, engineering etc.

- (v) To inculcate the habit of concentration, self reliance and discovery.
- (vi) To generate love for handwork.
- (vii) To develop in the student the rational and analytical thinking, and reasoning.
- (viii) To bring about all-round, harmonious development of the personality of the students.
- (ix) To develop in them a scientific, realistic and positive attitude towards life

Selection of the Teaching Method

Method of teaching science should be selected in terms of interaction of students and individual differences. Following criteria should be kept in mind in considering a suitable method of teaching –

1. Based on Aims – The method should be considered in terms of aims of teaching mathematics.
2. Rich interaction – The method should provide for rich interaction of the students with the environments in which they live.
3. Active participation – The child must be provided opportunities for active participation.
4. Learning by doing – Mathematics can be best learnt by doing rather than by reading. Laboratory method and mathematical laboratory are good methods of teaching. It proceeds from concrete to abstract.
5. Introduction of lesson – The lesson should be started in an interesting manner.
6. Use of teaching Aids – The subject matter should be made clear with the help of teaching aids, illustration and with concrete meaningful object.
7. Devise of questioning – Questioning, discussion etc. should be part of teaching.
8. Correlation – The unperturbed information should be in correlation with other subjects in an integrated manner.
9. BB summary – the teacher should develop BB summary side by side while developing the lesson.
10. Language – Simple language should be used by the teacher. Use of lengthy definitions, difficult phrases should be avoided.
11. Dynamic – The teaching method should be dynamic.

Awareness of the procedure, merits and limitations of the following methods will broaden the outlook of the teacher -----

- 1 Lecture method
- 2 Dogmatic method
- 3 Inductive- eductive method
- 4 Heuristic method
- 5 Analytic synthetic method
- 6 Laboratory method
- 7 Project method
- 8 Topical method
- 9 Concentric method.

Teaching of Mathematics at Primary Level

Activity Sheet

	Materials required
Q.1. You have got two toffees. Your friend gives you 3 toffees. How many toffees are there altogether?	Toffees
Q.2. Ramit has got 8 toys. He gives 2 toys to his cousin. How many toys are left with him?	Toys
Q.3. One coin is kept in the glass. I give this coin to Namita. How many coins are left in the glass?	glass, coin
Q.4. Arrange 6 seeds in each of the four rows. How many seeds are there altogether? What will be the product of 6 and 4?	seeds
Q.5. How many stars are made altogether in 3 triangles? -----+-----=24 -----x3=24	Paper cuttings of triangles
Q.6. Show 5×4 on the number line. _____	Scale
Q.7. How many meeting points are there in the grid of the sticks? $\therefore 6 \times 4 =$ -----	Grid of sticks
Q.8. Find $15 \div 3$ with the help of beads.	Beads
Q.9. Find $15 \div 4$ with the help of flowers. What is the Quotient and what is the remainder?	Flowers
Q.10. Show $15 \div 3$ on the number line.	
Q.11. Paint $\frac{1}{2}$ of the sugarcane stick with blue colour.	Figures of sugarcane & paint/water colour/crayones
Q.12. Cut the apple in 6 equals parts. Each part is----- of the apple. _____	Apple, knife

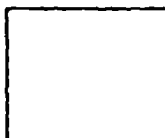
Q.13. Arrange the given paper cuttings to form a circle

Circular paper
Cut into a no of
parts

Q.14 Fold the given strip of the paper to get 12 equal parts Cut away 3 parts How many $\frac{1}{12}$ are left now?

Paper strip

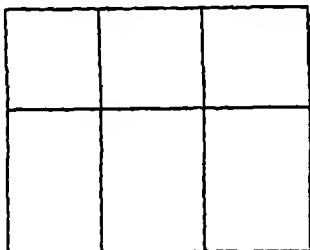
Q.15 Colour $\frac{1}{4}$ th of the square.



Crayons

Q.16. Place the two paper cuttings on the given figure. How much do you get by adding $\frac{1}{6}$ to $\frac{2}{6}$?

Two paper
cuttings of size
 $\frac{1}{6}$ th of the given
figure

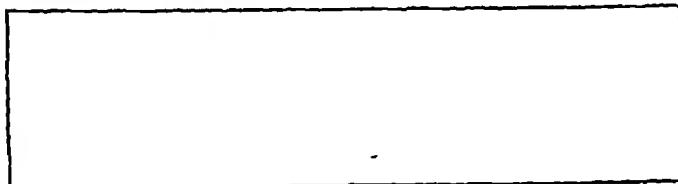


Q.17 Cut $\frac{4}{5}$ of the given piece of paper.

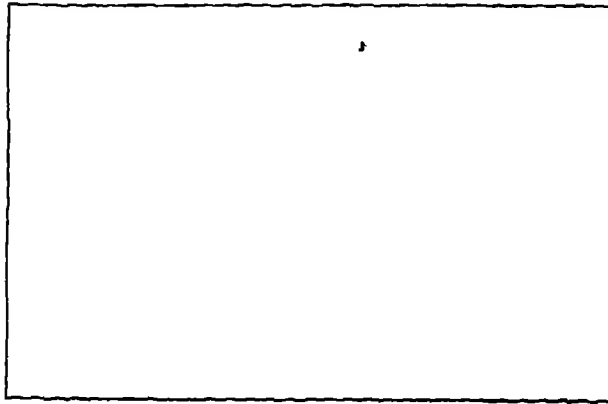
Paper, Scissors

Q.18 Draw lines to divide the figure into 7 equal parts. Colour $\frac{2}{7}$ th by red and $\frac{3}{7}$ th by yellow. How many parts are left uncolored?

Crayons



Q.19. How ^{will you get} $\frac{4}{5}$ of $\frac{5}{6}$ with the help of square blocks.

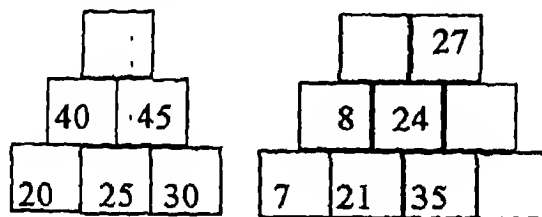


Crayons

Q.20. Arrange the given squares to get a perimeter of
(i) 14 cm (ii) 28 cm .

Cuttings of 7
squares of side
1 cm

Q.21. Fill in the blank blocks



Q 22 Colour the numbers divisible by 3. Do you see any pattern?

crayons

3	5	7	9
11	13	15	17
19	21	23	25
27	29	31	33
35	37	39	41
43	45	47	49
51	53	55	57
59	61	63	65
67	69	71	73

- Q.23. Arrange the match sticks to form
 (i) a right angle (ii) an acute angle
 (iii) an obtuse angle

Match sticks

- Q 24. Arrange two right angles to form a closed figure.
 What shape do you get?

Match sticks

- Q 25. (i) How many 100 gm will make 1 Kg?
 (ii) How many 200 gm will make 1 kg?
 (iii) How many 500 gm will make 1 kg?

Paper cutting of
 100 gm, 200 gm,
 500 gm and 1 kg.

- Q.26. Arrange the given triangles to form a flower
 of (i) 4 petals (ii) 6 petals

Paper cuttings of
 Triangles

- Q 27. Arrange the given triangles to form the shape of a
 Bird/girl.

- Q.28 Measure the angles of the given triangles and fill
 up the table -

Paper cuttings of
 the triangles

Triangle No	$\angle 1$	$\angle 2$	$\angle 3$	$\angle 1 + \angle 2 + \angle 3$
1				
2				
3				
4				
5				

Are the
 sum of the
 three angles
 equal?

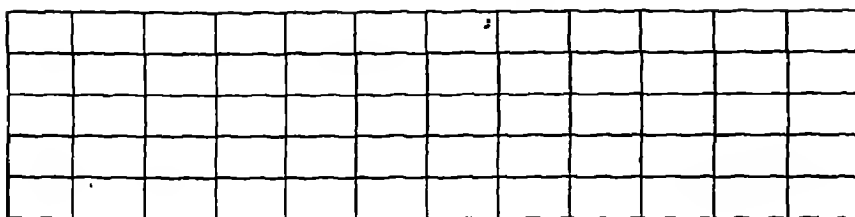
- Q.29. Measure the sides of the given triangles and fill up
 tables -

Cutting of the the
 triangles

Triangle No.	Side 1	Side 2	Side3	Are the three sides equal
1				Yes/no
2				Yes/no
3				Yes/no
4				Yes/no
5				Yes/no

Separate the triangles having all the three sides equal.

Q 30. Shade 10% of 60 in the given figure.



Q.31 Colour 5% of 10 in a figure of square blocks.

Q.32. Solve $15 \div 3 + 2 \times 4 - 3$ using beads.

Q.33. Colour 0.3 by drawing figure of square blocks.

Q 34. Show 5.7 on the number line.



Q.25. Show 25% (a) in the following figure.
(b) in the paper strip.

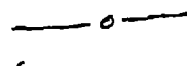


Crayons

Beads

Crayons

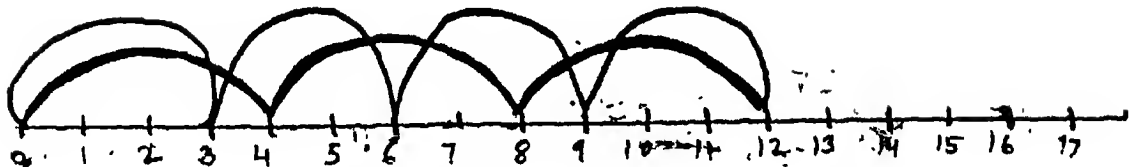
Paper strip



Hints

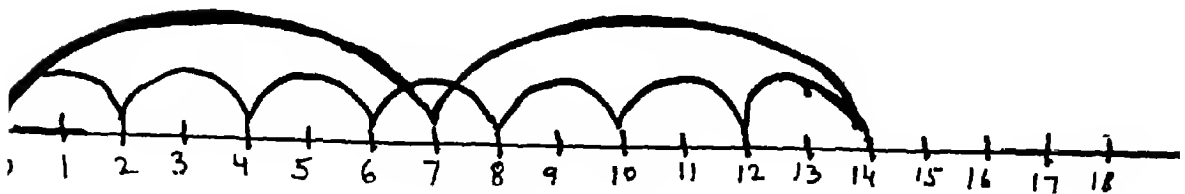
Property of multiplication

Number way



$$3 \times 4 = 12$$

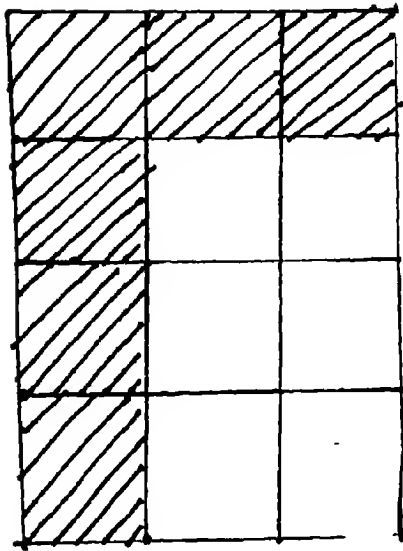
$$4 \times 3 = 12$$



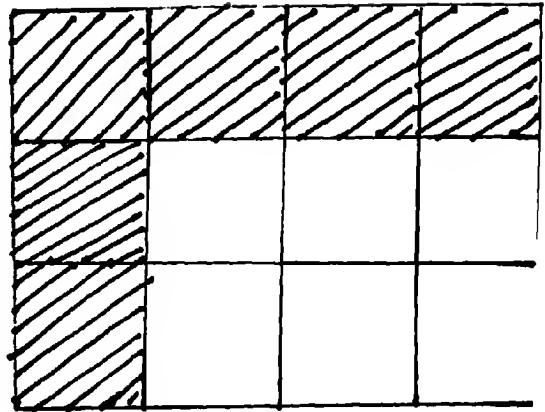
$$2 \times 7 = 14$$

$$7 \times 2 = 14$$

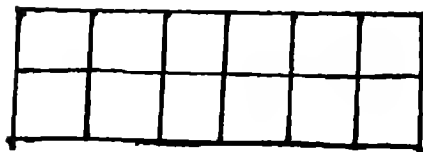
Property of multiplication.
Box pattern way



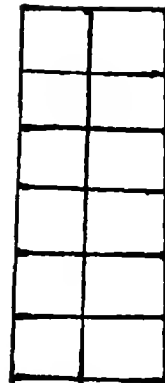
$$4 \times 3 = 12$$



$$3 \times 4 = 12$$



$$2 \times 6 = 12$$



$$6 \times 2 = 12$$

Distribution law of Multiplication

$$7 \times 4 = 28$$

*	*	*	*
*	*	*	*
*	*	*	*
*	*	*	*
*	*	*	*
*	*	*	*
*	*	*	*

$$5 \times 4 = 20$$

$$2 \times 4 = 8$$

$$(5+2) \times 4 = (5 \times 4) + (2 \times 4)$$
$$(A+B) \times C = (A \times C) + (B \times C)$$

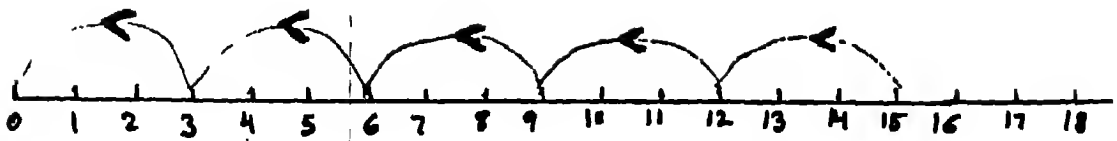
This property helps in 2 or 3 digits multiplication

$$\begin{aligned} 15 \times 18 &= 15 \times (10+8) \\ &= (15 \times 10) + (15 \times 8) \\ &= 150 + 120 \\ &= 270 \end{aligned}$$

Division

Number way

Grouping requires division



$$15 \div 3 = 5$$

$$(3 \times 5 = 15)$$

Division — a reverse process of multiplication

Equal-sharing requires division

6 Columns ↓

3 Rows →

☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	☐

$$18 \div 3 = 6$$

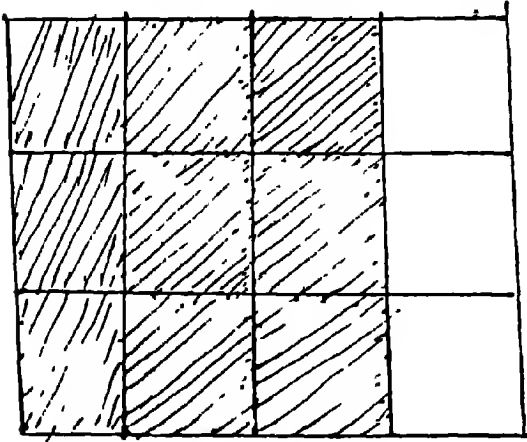
$$18 \div 6 = 3$$

Corresponding multiplication fact —

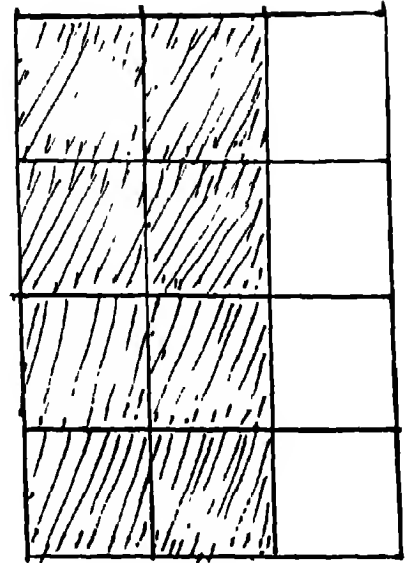
$$3 \times 6 = 18$$

Addition of Fraction

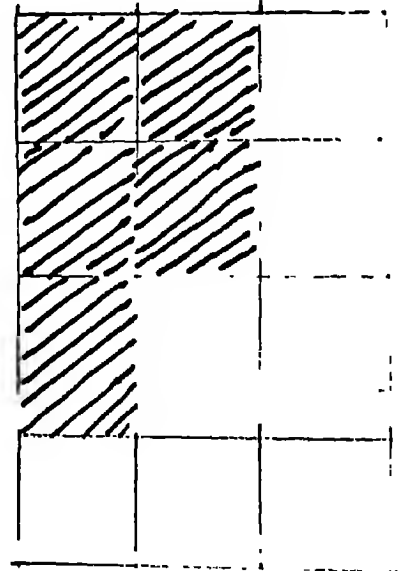
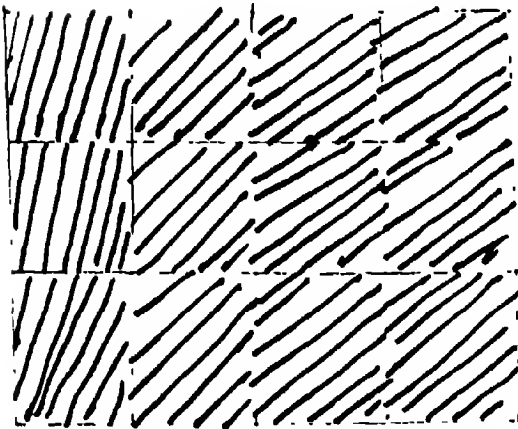
$$\frac{3}{4} + \frac{2}{3} = \frac{3 \times 3}{4 \times 3} + \frac{2 \times 4}{3 \times 4} = \frac{9}{12} + \frac{8}{12}$$



+



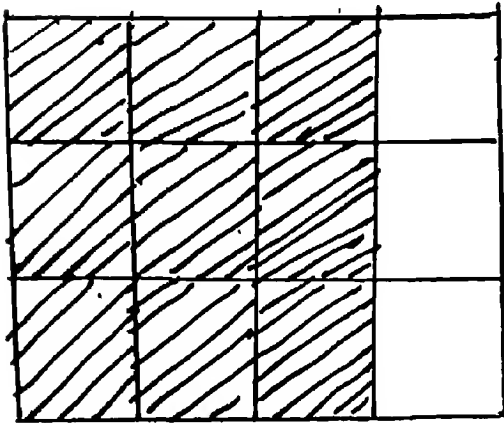
$$\frac{9}{12} + \frac{8}{12} = \frac{17}{12}$$



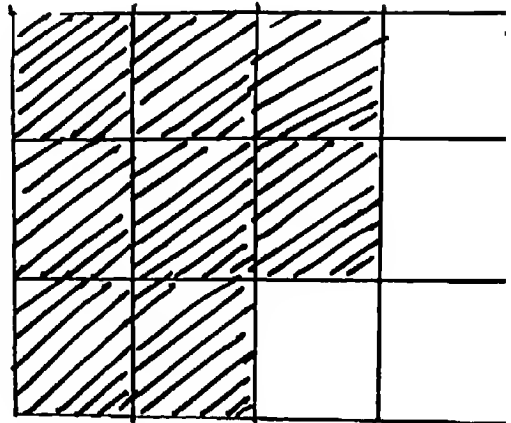
$$\frac{3}{4} + \frac{2}{3} = \frac{17}{12} = 1 + 5 \times \frac{1}{12} = 1 + \frac{5}{12} = 1\frac{5}{12}$$

Subtraction of Fraction

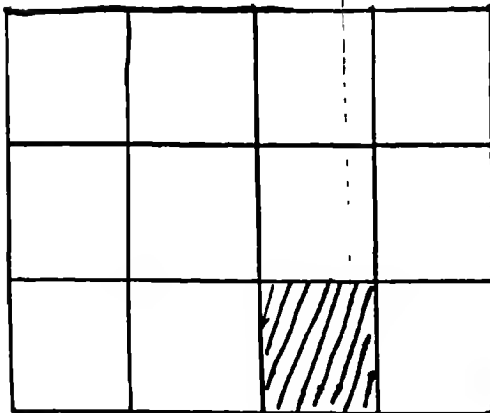
$$\frac{3}{4} - \frac{2}{3} = \frac{\cancel{3} \times 3}{4 \times \cancel{3}} - \frac{\cancel{2} \times 4}{3 \times \cancel{4}} = \frac{9}{12} - \frac{8}{12}$$



-



$$\frac{9}{12} - \frac{8}{12} = \frac{1}{12}$$



$$\frac{1}{12}$$

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